NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
SHELLFISH PROGRAM: 2003 ANNUAL REPORT

March 2004

New Hampshire Department of Environmental Services
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Watershed Management Bureau
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NEW HAMPSHIRE
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Prepared by
Chris Nash, DES Shellfish Program Manager

New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, New Hampshire 03301
www.des.nh.gov

Michael P. Nolin, Commissioner
Harry T. Stewart, P.E., Water Division Director

March 2004

Cover: Digging for Softshell Clams, Hampton/Seabrook Harbor
Photo courtesy of Aquaculture Education and Research Center (used by permission)

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INTRODUCTION AND PURPOSE OF REPORT

The New Hampshire Department of Environmental Services (DES), under the authority granted by RSA 143:21 and 143:21-a, is responsible for classifying shellfish growing waters in the State of New Hampshire. The purpose of conducting shellfish water classifications is to determine if growing waters are safe for human consumption of molluscan shellfish. DES uses a set of guidelines and standards known as the National Shellfish Sanitation Program (NSSP) for classifying shellfish growing waters. These guidelines were collaboratively developed by state agencies, the commercial shellfish industry, and the federal government in order to provide uniform regulatory standards for the commercial shellfish industry. The NSSP is used by DES to classify all growing waters, whether used for commercial or recreational harvesting, because these standards provide a reliable methodology to protect public health. Furthermore, RSA 485-A:8 (V) states that "Those tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the foregoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration."

This document represents the fourth Annual Report of the DES Shellfish Program. The preparation of an Annual Report serves two purposes. The first is to comply with the NSSP requirement for an annual review of growing area classifications. The second is to report to the citizens of the State of New Hampshire on the activities and accomplishments of the DES Shellfish Program, to describe water quality status and trends in shellfish growing areas, and to outline future activities to improve water quality and expand harvesting opportunities.

PROGRAM ACTIVITIES AND ACCOMPLISHMENTS

Monitoring Programs

Routine Monitoring

The DES maintains a routine shellfish water-monitoring program in all tidal waters in the State of New Hampshire. The focus of this program is to collect and test water samples for fecal coliform bacteria, which is used as an indicator of contamination from human or animal waste. Data generated by this program are used to annually review shellfish water classifications. Seventy-six stations in the Great Bay Estuary (including the Piscataqua River), Little Harbor/Back Channel, Rye Harbor, the Atlantic Coast, and the Hampton/Seabrook Estuary were sampled on a monthly basis for most of the year in 2003. Almost 800 samples (56 sampling runs) were collected in 2003, in accordance with the Systematic Random Sampling Strategy described in the NSSP. Figures 1-5 depict growing areas and sampling stations. Appendix 1 lists current classification and acreages for all growing waters, while Appendix 2 presents the most recent 30 water samples collected as part of the Systematic Random Sampling program. Water quality in areas currently open to harvesting is generally good, although some sites show rainfall-related impacts that require management on a conditional basis. The 2004 routine shellfish water-monitoring program will be conducted in a manner similar to the 2003 program. Results from the routine monitoring program are reviewed in the "Update of Growing Area Classifications" section of this report.

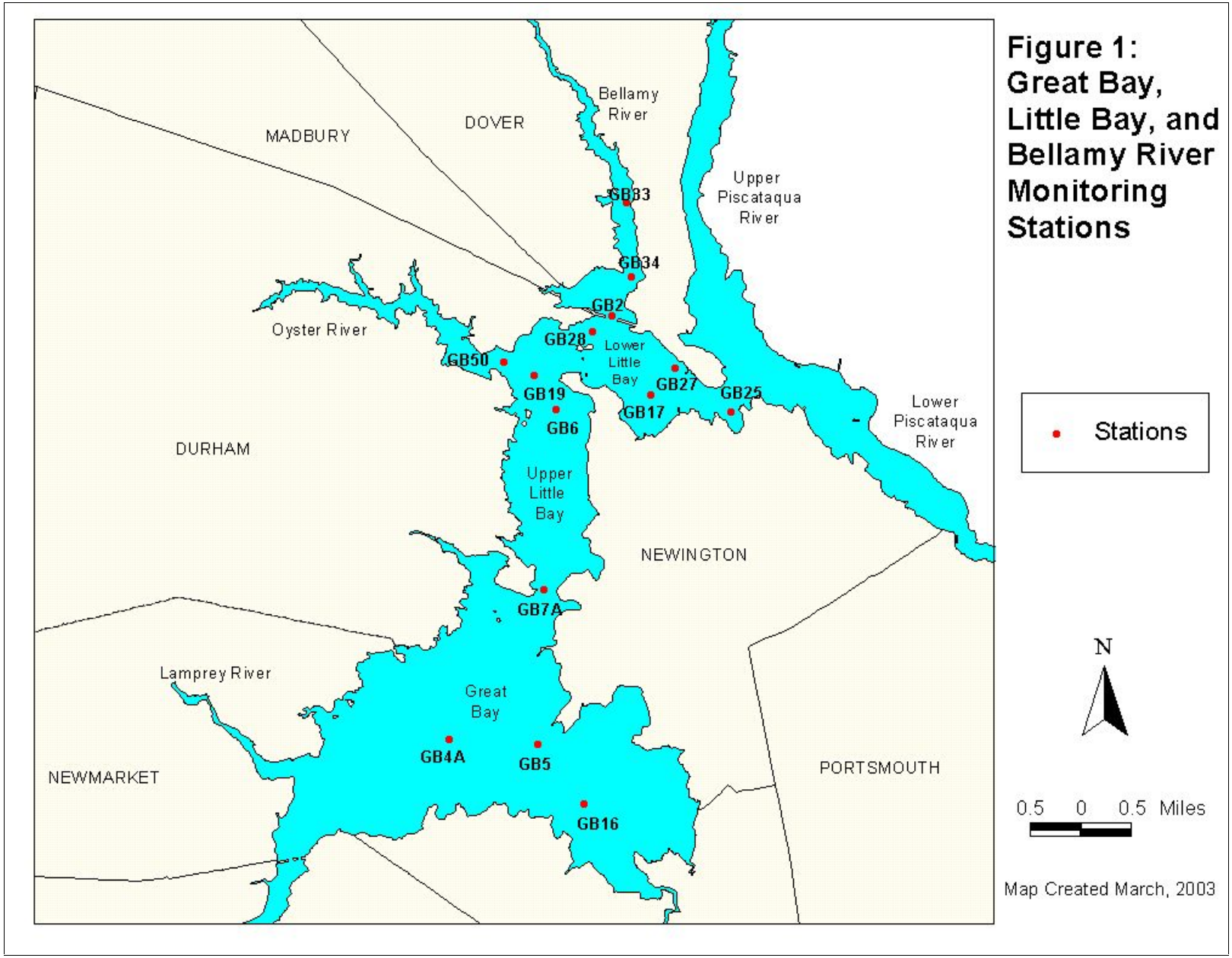
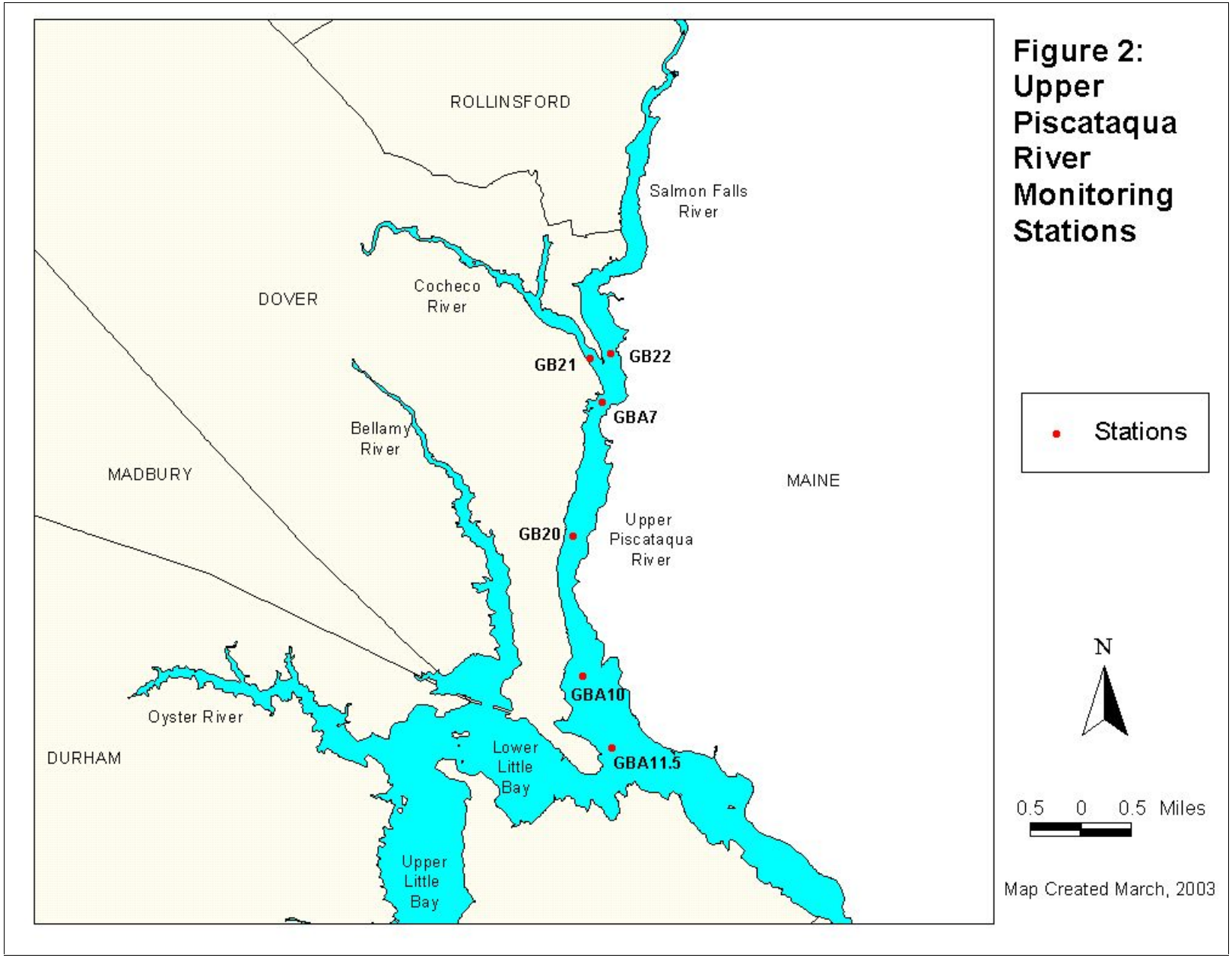
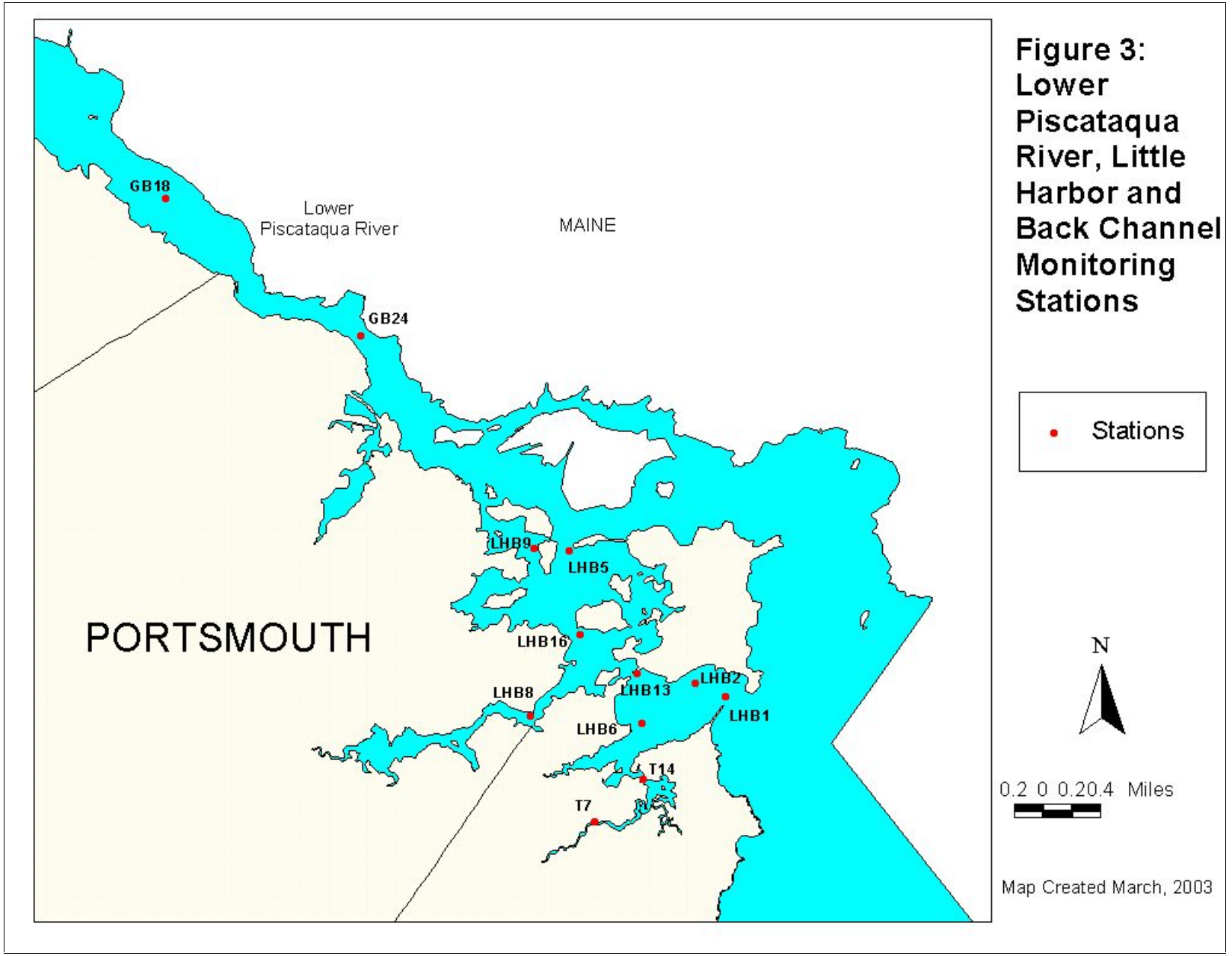


Figure 1:
Great Bay, Little Bay, and Bellamy River Monitoring Stations
MADBURY
DOVER
Bellamy River
Upper Piscataqua River
GB33
GB34
GB2
GB28
Lower Little Bay
Oyster River
GB50
GB19
GB27
GB25
GB17
GB6
Lower Piscataqua River
DURHAM
Upper Little Bay
NEWINGTON
GB7A
Lamprey River
Great Bay
GB4A
GB5
NEWMARKET
PORTSMOUTH
GB16
Stations
N
0.5 0 0.5 Miles
Map Created March, 2003


ROLLINSFORD
Salmon Falls River
Cocheco River
DOVER
GB21
GB22
GBA7
Bellamy River
MADBURY
MAINE
GB20
Upper Piscataqua River
GBA10
Oyster River
DURHAM
Lower Little Bay
GBA11.5
Upper Little Bay
Figure 2: Upper Piscataqua River Monitoring Stations
Stations
N
0.5 0 0.5 Miles
Map Created March, 2003


GB18
Lower
Piscataqua River
MAINE
GB24
LHB9
LHB5
PORTSMOUTH
LHB16
LHB8
LHB13
LHB2
LHB1
LHB6
T14
T7
Figure 3:
Lower
Piscataqua
River, Little
Harbor and
Back Channel
Monitoring
Stations
Stations
N
0.2 0 0.20.4 Miles
Map Created March, 2003

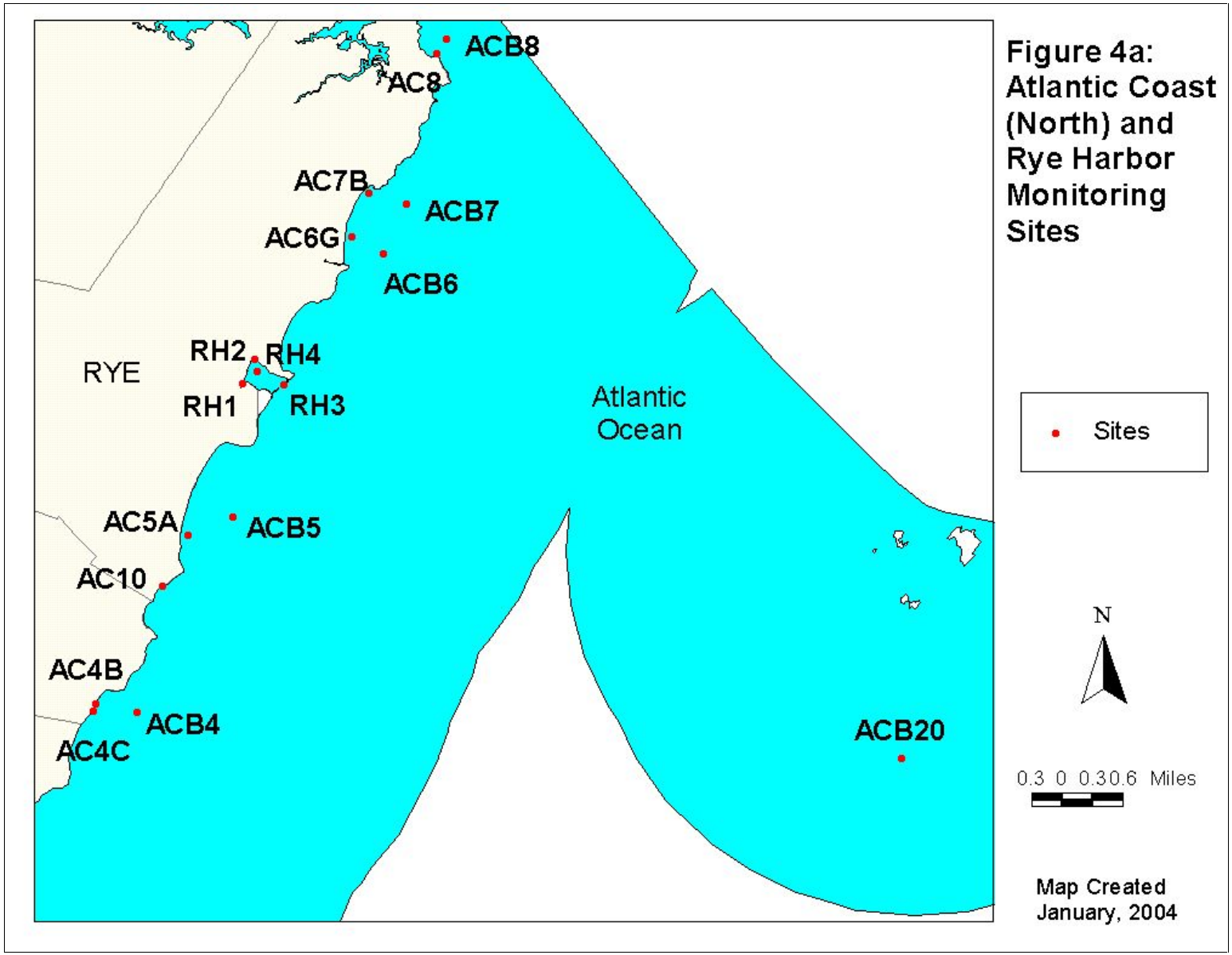
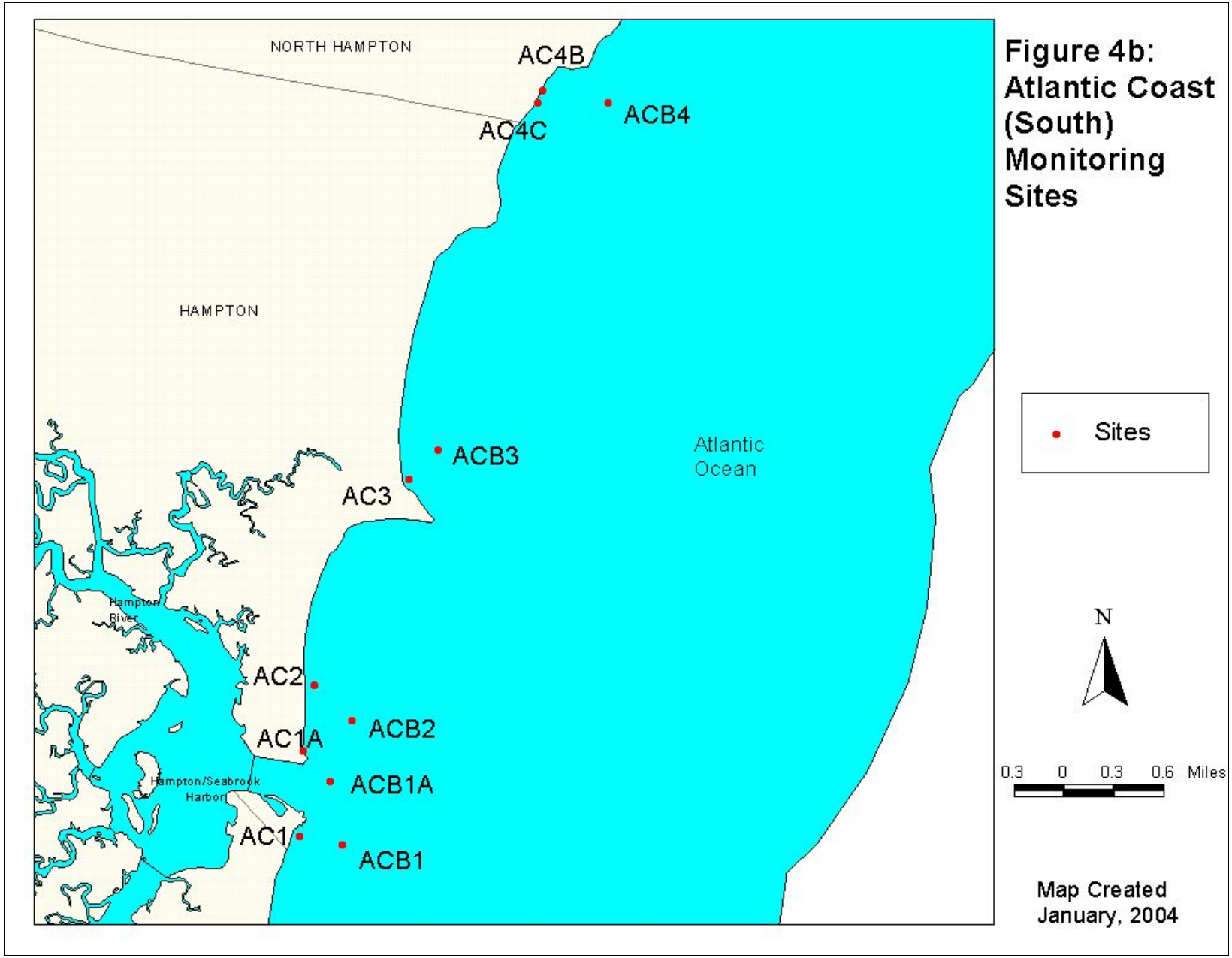
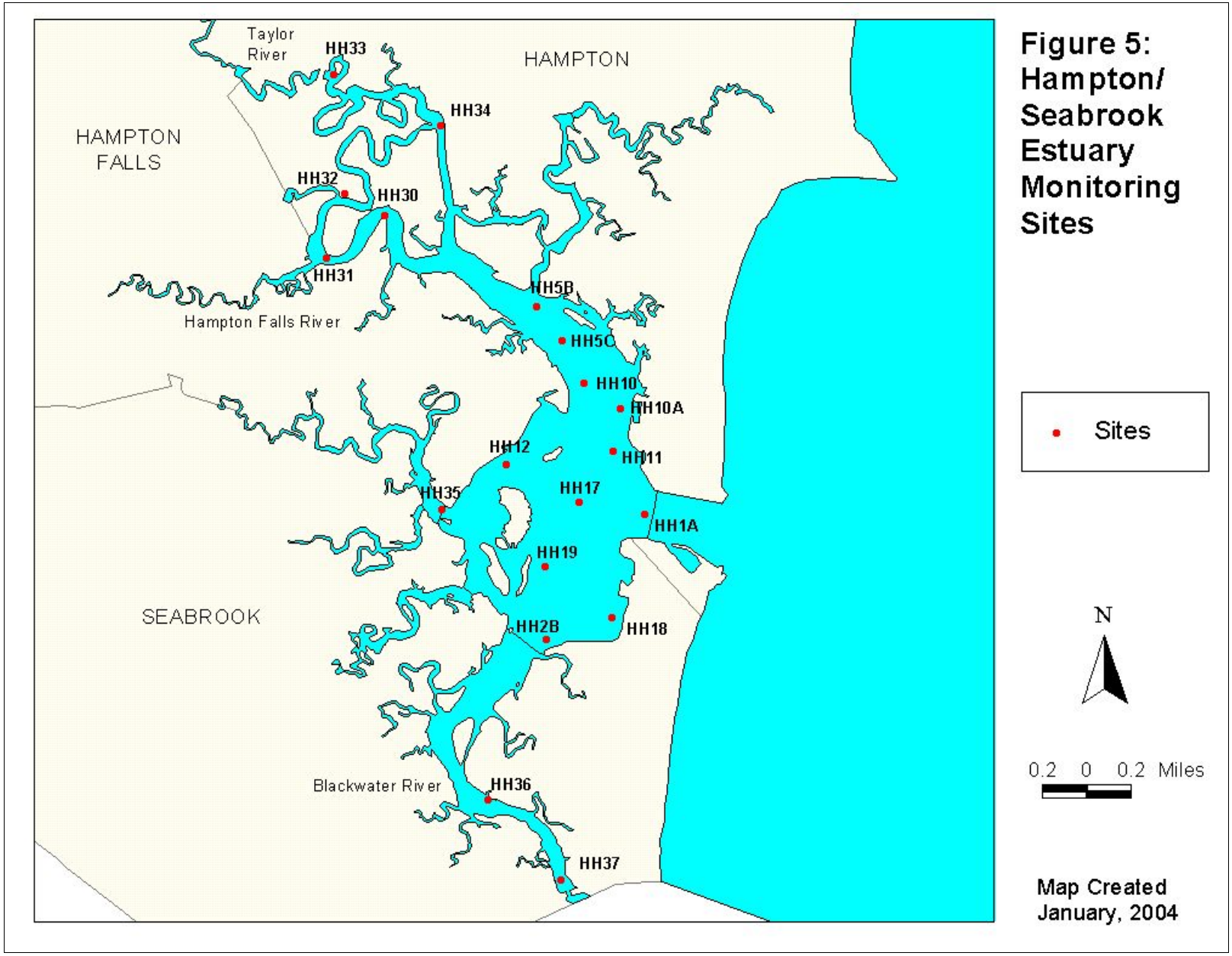


Figure 4a: Atlantic Coast (North) and Rye Harbor Monitoring Sites


NORTH HAMPTON
AC4B
ACB4
AC4C
HAMPTON
ACB3
Atlantic
Ocean
AC3
Hampton
River
AC2
ACB2
AC1A
Hampton/Seabrook
Harbor
ACB1A
AC1
ACB1
Figure 4b:
Atlantic Coast
(South)
Monitoring
Sites
Sites
N
0.3 0 0.3 0.6 Miles
Map Created
January, 2004


Taylor River
HH33
HAMPTON
HH34
HAMPTON FALLS
HH32
HH30
HH31
HH5B
Hampton Falls River
HH5C
HH10
HH10A
HH12
HH11
HH35
HH17
HH1A
HH19
SEABROOK
HH2B
HH18
Blackwater River
HH36
HH37
Figure 5: Hampton/ Seabrook Estuary Monitoring Sites
Sites
N
0.2 0 0.2 Miles
Map Created January, 2004

Paralytic Shellfish Poisoning Monitoring

The waters of the Gulf of Maine are prone to "blooms" of phytoplankton that can produce potent neurotoxins, and filter-feeding shellfish can accumulate concentrations of these toxins such that the shellfish themselves become a public health threat to consumers. For this reason, the DES maintains a biotoxin monitoring program, focused on Paralytic Shellfish Poisoning (PSP).

The 2003 monitoring program included weekly sampling of blue mussels from Hampton/Seabrook Harbor for the period of April through October, as well as May through September sampling at Star Island, Isles of Shoals. After a series of low (<44 micrograms toxin/100 grams tissue) PSP levels to start the PSP monitoring season, an increase in toxicity was observed in early June. When the June 3, 2003 sample from Star Island exceeded the 80 microgram limit, a closure to an offshore aquaculture site was immediately instituted, and sampling at secondary stations in the nearshore environment (Rye Ledge, Little Harbor) began. Soon after this event, neighboring states began observing increased PSP levels at their sites, and implemented closures as well. Samples from numerous New Hampshire locations the following week showed elevated levels of toxin. Although no inshore sampling stations exceeded the 80 microgram threshold, the elevated toxin levels, coupled with high and rising toxin levels in southern Maine waters, prompted DES to extend the closure to all Atlantic coast growing waters on June 13, 2003. Continued sampling at primary and secondary sampling stations, including two stations in the Great Bay Estuary (oyster and mussel samples), continued in June. A continuation of the elevated, and in some cases rising, toxin levels were observed at all sites during the week of June 16, 2003, as well as during the week of June 23, 2003. Subsequent tests showed decreasing toxin levels, allowing the closure to be lifted in July.

Maine implemented another closure in the fall of 2003; however, New Hampshire sites did not show any sign of elevated or high toxicity during this period, so no additional closures were implemented. A total of 62 samples were collected in 2003.

Shellfish Tissue Testing

To comply with NSSP requirements, a new sampling program to examine the bacteriological quality of shellfish tissue was implemented in 2003. Sampling was conducted under baseline (dry weather) conditions, as well as after rainfall and wastewater treatment plant failure events. The data (Appendix 3) were used to make open/closed decisions for a number of growing waters, and will be an invaluable dataset for future sanitary surveys.

NH Department of Environmental Services and NH Fish and Game Department staff collecting oysters from Nannie Island, Great Bay. Shellfish meats and overlying waters are tested for bacteria following heavy rainfall events, or after sewage discharge/overflows. (DES Shellfish Program photo)

Pollution Source Identification and Evaluation

In support of sanitary survey development, a wide range of activities to identify, document, sample, and evaluate pollution sources in and near shellfish growing waters were undertaken in 2003. Sampling of sources in wet weather was emphasized in nearly all growing waters, especially in the Cocheco River, Lamprey River, Squamscott River, Upper Piscataqua River, and Salmon Falls River. Pollution source impact evaluations were focused on the Atlantic Coast, while sampling to support a bacterial TMDL in Little Harbor was conducted in wet weather conditions. Other evaluation studies such as wastewater treatment facility sampling and dye studies, bacterial loading estimations, autumn dry weather sampling in Hampton/Seabrook, and others were conducted in selected areas. Nearly 450 bacterial water samples were collected as part of this program in 2003.

Sanitary Surveys

DES has a goal of surveying all shellfish growing areas by the end of 2005. The following gives an overview of progress toward that goal, and the status of each project that is currently underway:

- Bellamy River: Sanitary survey begun in 2001. Shoreline survey is complete. Of the 70 sources sampled, 14 have tentatively been selected for further evaluation based on bacteria and flow data. However, in early January 2003 there were multiple sewage overflows that occurred for several hours before the City of Dover knew of the problems; thus, there were significant delays in the amount of time it took for the city to notify DES, and for DES to implement a closure. Because a similar situation occurred in the spring of 2001, DES needs to evaluate whether the City's capabilities to detect such events can occur in a manner that is timely enough to allow for (conditional) shellfish harvesting on the Bellamy River. DES Shellfish Program staff will discuss these concerns with Dover staff in 2004, and will then decide how to proceed with the Bellamy River sanitary survey. A final report is tentatively scheduled for fall 2004.
- Hampton/Seabrook: Sanitary survey begun in 2000. Expanded rainfall testing in 2000-02 led to the revision of the rainfall closure criterion in early 2003 (increased to 0.25" for all harvesting months). Shoreline survey is complete, but under constant revision. Source impact evaluations through the TMDL project were completed in the fall of 2002. Shellfish meat/water testing, critical to revising the rainfall closure criterion, began winter 2003, and will continue into 2004. Additional source evaluations and limited shoreline walks (Mill Creek) were conducted in 2003, and will continue into 2004. A final sanitary survey is planned for spring 2005.
- Other Hampton/Seabrook Tributaries: Future efforts to focus on Mill Creek and the Blackwater River. Previous studies document chronically high bacteria in Mill Creek. Bracketed sampling and a shoreline survey was conducted in 2003, with more work planned for 2004. Blackwater River sources surveyed in 2001-02; augmented ambient monitoring begun in spring 2003, scheduled to continue through 2004. A final sanitary survey is planned for spring 2005.
- Great Bay: Sanitary survey begun in 2001. Shoreline survey is nearly complete. Of the 87 sources sampled, 40 have tentatively been selected for further evaluation based on bacteria and flow data. This evaluation is scheduled to begin 2004. Some dye study work on the Exeter WWTF and the Newfields WWTF has been completed. A dye study for the Newmarket WWTF was performed in November 2003. Completion of dye study reports is planned for spring 2004. A final sanitary survey report is scheduled for fall 2004.
- Little Bay: Sanitary survey begun in 2001. Shoreline survey is complete. Of the 69 sources sampled, 18 have tentatively been selected for further evaluation based on bacteria and flow data. This evaluation is scheduled to begin in 2004. Classification of all of Little Bay was revised as part of the Oyster River dye study. Further revisions may be forthcoming per the results of the shoreline survey pollution source evaluations. A final sanitary survey report is scheduled for fall 2004.
- Upper Piscataqua River: Sanitary survey begun in 2002. Shoreline survey sampling (wet and dry weather) was completed in 2003. Source evaluation is scheduled for 2004, possibly into 2005. A dye study of the Dover WWTF is needed to delineate the safety zone around the outfall, and a joint study with the State of Maine was tentatively scheduled for summer

2003; however, the City informed DES that several of the outfall ports are blocked, and work to correct the problem is tentatively scheduled for winter/spring 2004. FDA and DES agree that the dye study should be delayed until this work is complete. A final sanitary survey report is scheduled for summer 2005.

- Cocheco River: Shoreline survey sampling (wet and dry weather) was completed in 2003. Source evaluation is scheduled for 2004, possibly into 2005. A final sanitary survey report is scheduled for summer 2005.
- Salmon Falls River: Shoreline survey sampling (wet and dry weather) was completed in 2003. Source evaluation is scheduled for 2004, possibly into 2005.

Other Activities

Wastewater Treatment Facility Dye Studies

The NSSP calls for the establishment of permanently closed "safety zones" around all wastewater treatment plant outfalls. These zones not only serve as "buffers" for relatively minor difficulties in wastewater treatment (e.g., occasionally elevated bacterial levels in plant effluent relative to discharge permit limitations), but also serve to protect harvesters from shellfish that may be contaminated by more serious plant failures (e.g., malfunction of disinfection systems). These safety zones are sized to cover the area that would be contaminated by a serious plant failure during the period of time required for plant operators to discover the problem and notify state authorities, and the time required for state authorities to institute an emergency closure of shellfish harvesting areas. Factors such as plant discharge volume and bacterial concentration, as well as current speeds and available dilution capacity of the surrounding waters, are key to properly sizing the closed safety zone. Dye/dilution studies are often utilized to gather accurate data on the dilution capacity and time of travel characteristics around a wastewater treatment plant outfall.

With the assistance of the EPA/Chelmsford Laboratory and the Town of Newmarket, DES conducted a dye/dilution study of the Newmarket wastewater treatment facility (WWTF) in November 2003. Plant operations were analyzed in the spring/summer of 2003 in order to determine what type of WWTF failure should be modeled by the dye study. Rhodamine Wt dye was injected into post-chlorination plant effluent at high tide on November 3, 2003. Dye concentrations and plume time of travel were tracked with fluorometers at several locations during the ebbing tide in the Lamprey River and portions of Great Bay. Follow-up dye tracking was performed the following day thoroughout Great Bay, the Lamprey River, and the Squamscott River. Data analysis and report preparation are planned for winter/spring 2004. Completion of a report for a previous dye study done in Exeter is also planned for 2004.

Annual Program Review by USFDA

In February 2002, the US Food and Drug Administration (FDA) recognized New Hampshire as a "shellfish-producing" state because its shellfish regulatory programs (growing water classification, commercial handling, patrol) comply with the National Shellfish Sanitation Program. This recognition, which is maintained through a satisfactory annual program review by FDA, allows

New Hampshire companies, including aquaculture operations, to engage in interstate commerce. For the most recent program review, staff met with FDA over the course of two days in May 2003 to perform site visits, review files, and other activities to help FDA evaluate the program. FDA issued its report in the late fall of 2003, finding the DES Shellfish Program to be in compliance with the relevant aspects of the NSSP.

Outreach Initiatives

The DES Shellfish Program engages the public through a number of outreach initiatives. The most significant of these is the development and maintenance of the program website (http://www.des.state.nh.us/wmb/shellfish), which not only gives information relevant to recreational harvesting (maps, FAQs, tide charts, information on openings/closings), but also provides access to a number of shellfish-related reports. Among the reports made available in PDF format are the 2002 DES Shellfish Program Annual Report, the NHEP Shellfish Indicators report, and an NHEP-funded report on juvenile clam mortality in Hampton/Seabrook Harbor. Other outreach initiatives during the project period included participation in the Aquaculture Education and Research Center's "Clam Digging for Dummies" workshops in the spring of 2003, and the preparation of a fact sheet on "Red Tide in Coastal New Hampshire" in June 2003.

As had been the case in previous years, the DES Shellfish Program continues to involve citizen volunteers from the Great Bay Coast Watch in several aspects of the program. These include collection and transportation of mussel samples for PSP testing at Star Island, sampling of pollution sources, assistance in conducting ambient monitoring, and other activities. DES intends to continue to offer opportunities for volunteer involvement in 2004.

Quality Assurance Programs

A new element to the DES Shellfish Program in 2002 was the development and implementation of Quality Assurance Project Plans (QAPPs) for bacterial monitoring, paralytic shellfish poison monitoring, and sanitary surveys. Each of these plans describes data collection methods, monitoring objectives, training needs, data review, documentation, management, and reporting, and other issues relative to the collection of environmental data. Ultimately, each QAPP outlines data collection such that the quality of the data generated by the monitoring program is of known quality, thus enabling potential data users to determine the degree to which the data suits their own needs. Implementation of these QAPPs in 2003 is described below.

The Water Quality Monitoring QAPP stipulates:

- Annual coordination meeting with key personnel: meeting was held on March 5, 2003.
- Training in monitoring procedures, to be held at annual meeting of key personnel: procedures were reviewed at the annual meeting held on March 5, 2003. A specific training session was held at the Great Bay Coast Watch (GBCW) office on April 22, 2003, but the most meaningful training (reviews of monitoring procedures) was done on an ongoing basis during sampling runs.

- Maintenance of a list of trained personnel: list was maintained at the DES Pease field office.
- Sampling of all conditionally approved areas to occur at least 6 times per year: this was accomplished, as noted in Appendix 2.
- Calibration of equipment (thermometers): as of January 1, 2003 all thermometers are now calibrated three times a year. For 2003, calibration dates were January 27, June 6, and September 25, 2003. Spreadsheets containing the calibration date, calibrator, and appropriate correction value, if applicable, are maintained at the DES Pease field office. The YSI meter was calibrated with each use per manufacturer instructions, and temperature calibration was conducted along with the thermometers.
- Preparation of quarterly reports: quarterly reports were submitted to the NH Estuaries Project, per conditions of an interagency agreement, on April 4, June 30 (this was a final report for the extended 2002 grant), and September 30, 2003.

The Paralytic Shellfish Poisoning Monitoring QAPP stipulates:

- Weekly emails to appropriate lab and field staff to ensure coordination: this was done for the period of April through October.
- Monitoring of laboratory precision and establishment of new "CF" values as needed: Jayne Finnigan of the DHHS Public Health Laboratory reported that the laboratory maintained acceptable precision throughout the sampling period, with no new CF values needed.
- Documentation of the number of samples collected: 31 Hampton samples, 18 Star Island samples, 7 Rye Ledge samples, 4 Great Bay Estuary samples, and 2 Little Harbor samples.
- Reporting of all PSP Closures: offshore Atlantic closure memo issued June 4, 2003, reopening memo issued July 8, 2003. Nearshore Atlantic closure memo issued June 13, 2003, reopening memo issued July 2, 2003.

The Sanitary Survey QAPP stipulates:

- Annual coordination meeting with key personnel: meeting was held on March 5, 2003.
- Training in monitoring procedures, to be held at annual meeting of key personnel: procedures were reviewed at the annual meeting, but the most meaningful training (reviews of monitoring procedures) was done on an ongoing basis during sampling runs.
- Documentation of training sessions held with volunteers: shoreline survey training for volunteers was held on April 22, 2003. Additional training sessions for volunteers for related projects (pollution source sampling and flow measurement of Cains Brook) were held on October 9 and October 14, 2003.
- Document growing areas for which sanitary surveys are under development: The Oyster River was completed in April 2003, Great Bay, Little Bay, Bellamy River, and Hampton/Seabrook Harbor are still underway.
- Calibration of equipment (thermometers): as of January 1, 2003 all thermometers are now calibrated three times a year. For 2003, calibration dates were January 27, June 6, and September 25, 2003. Spreadsheets containing the calibration date, calibrator, and appropriate correction value, if applicable, are maintained at the DES Pease field office. The YSI meter was calibrated with each use per manufacturer instructions, and temperature calibration was conducted along with the thermometers.

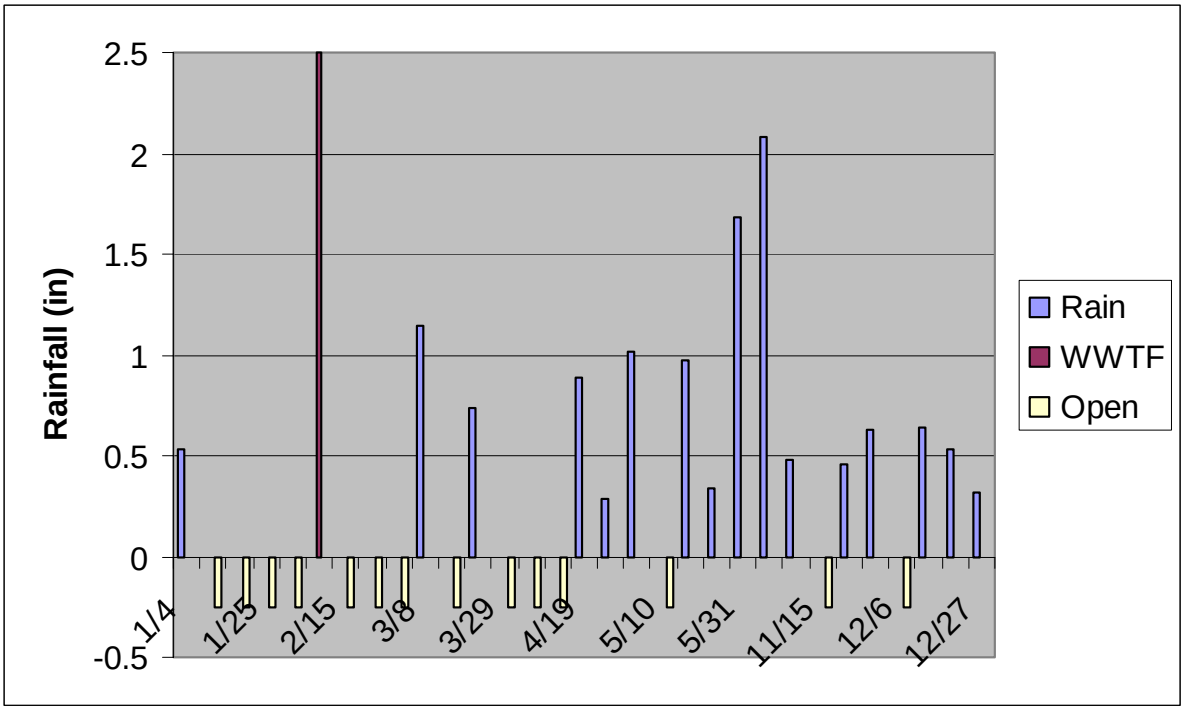
- Verify that tidal and stratification data are of acceptable quality: No tidal studies were conducted in 2003. Stratification data were collected as part of the Newmarket WWTF dye study in November 2003. Duplicate water temperature and salinity profiles were constructed for five percent of all profiles constructed, and all were within the target values of +/- 1^{o}C for water temperature, and +/-0.5 ppt for salinity.

CLOSURES

Rainfall/Conditional Closures

In 2003, the only areas classified as "Conditionally Approved" for rainfall were some sections of Hampton/Seabrook Harbor (rainfall closure threshold of 0.25 inches), as well as portions of Little Harbor (rainfall closure threshold of 0.50 inches). Figure 6a depicts the pattern of open/closed weekends for calendar year 2003 in Hampton/Seabrook, while Figure 6b shows similar information for Little Harbor. Blue bars represent weekends when the harbor was closed to harvesting due to rainfall, with the size of the bar indicating the amount of rain that caused the closure. Red bars represent weekends when the area was closed for a wastewater treatment facility upset. Yellow bars depict weekends that were open for harvesting.

Figure 6a: Hampton/Seabrook Rainfall Closures for 2003 Weekends

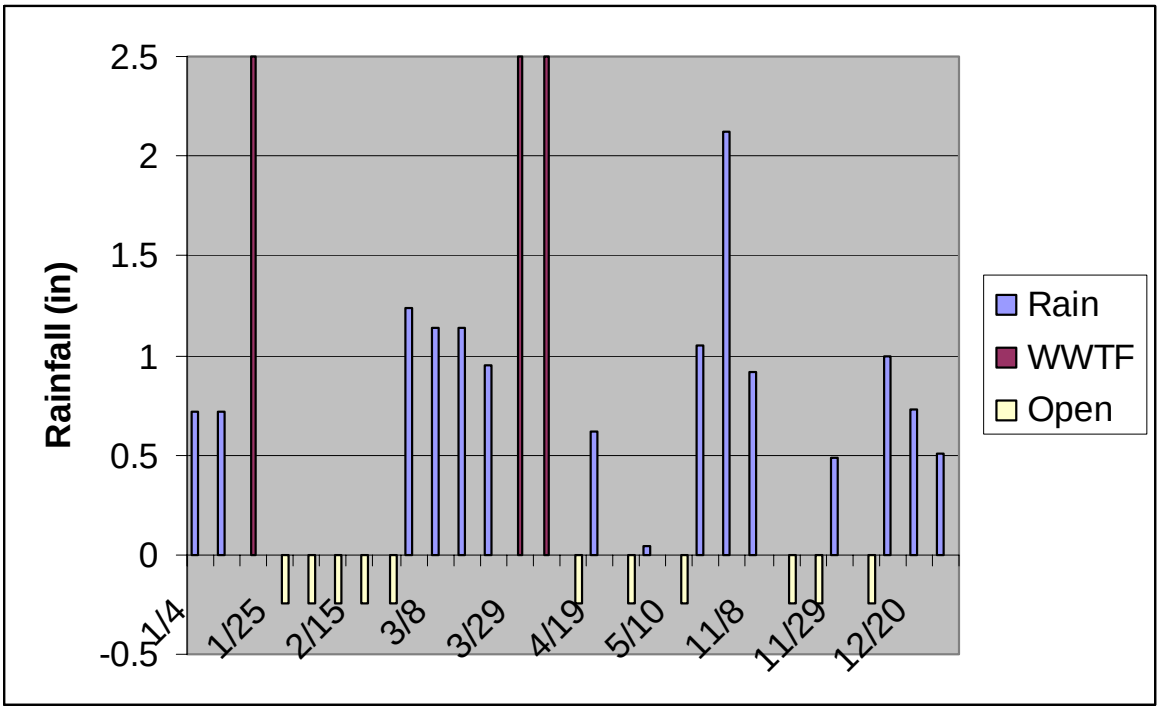


Weather conditions in early 2003 were relatively favorable for harvesting opportunities, but less favorable in the spring and fall. Of the 31 days during the January-May and November-December open season in Hampton/Seabrook, 14 days (45 percent) were open for harvesting (48 percent and 38 percent in 2002 and 2001, respectively). Of the 16 storms that caused a closure, 11 (69 percent) were over 0.50" of rainfall. A total of 23 sampling runs were conducted after the rainfall events that caused a closure. Eleven of these runs produced data that supported opening the flats before the typical 14-day closure period had elapsed.

In Little Harbor, there were 29 weekends during which harvesting could have occurred (January to mid-May, November-December). 11 days (38 percent) were open for harvesting. Three of the closures were a result of operational problems at the Portsmouth wastewater treatment facility,

while the other 15 were caused by rainfall events. Of these 15 rainfall closures, five were for storms of over one inch, while eight were in the 0.50-1.00 inch range. Two of the closures were based on weather forecasts of heavy rain which never materialized (forecast for the evening of May 2, 2003 was for heavy rain, but only 0.04" fell. Forecast for November 28, 2003 called for heavy rain, but only 0.49" fell). A total of 10 sampling runs were conducted after the rainfall events that caused a closure. Four of these runs produced data that supported opening the flats before the typical 14-day closure period had elapsed.

Figure 6b: Little Harbor Rainfall Closures for 2003 Weekends



Emergency Closures

2003 was a busy year for closures caused by sewage overflows from municipal wastewater treatment facilities and/or sewage collection infrastructure. Closed status sampling (water and shellfish tissue) is initiated after such closures to generate data used to drive decisions on when a reopening of the growing area is appropriate. Sewage discharge events that triggered sampling in 2003 included:

- January 13 and January 22 pump station overflows on the Bellamy River, Dover
- February 4 discharge of improperly disinfected sewage, Hampton WWTF
- March 21 and March 26 combined sewer overflow events in Exeter
- March 23, April 1 discharges of improperly treated effluent, Portsmouth WWTF
- April 15 Durham sewer line break near the WWTF on the Oyster River
- June 25 Dover pump station overflow (no closure needed)
- July 15 discharge of unchlorinated effluent from Exeter (no closure needed)

- August 24 pump station overflow in Seabrook (no closure needed)
- September 23 CSO discharge from Exeter (no closure needed)
- October 2 unchlorinated effluent discharge from Hampton (no closure needed)
- October 30 high fecal coliform counts due to moderate/heavy rainfall

Table 1 lists the emergency closures related to sewage overflows from wastewater treatment facilities or sewage collection infrastructure implemented in 2003.

Table 1: WWTF-Related Emergency Closures Implemented in 2003

Area	Sewage Discharge Event	Dates Closed to Harvesting
Great Bay, Little Bay	1/4/03: 66,000 gallon pump station overflow to Bellamy River (from Mill Street station) 1/9/03: 250,000 gallon pump station overflow to Bellamy River (from Charles Street station)	1/10/03-1/24/03 for Great Bay; 1/11/03 and 1/18/03 for Little Bay
Great Bay, Little Bay	3/21/03: 235,000 gallon Exeter CSO discharge 3/31/03: ~302,000 gallon Exeter CSO discharge	3/21/03-4/15/03 for Great Bay; 3/22/03, 3/29/03, 4/5/03, 4/12/03 for Little Bay
Little Bay	4/15/03 6,000 gallon raw sewage discharge from sewer line break in Durham on banks of Oyster River	4/19/03
Little Harbor	12/28/03: 289,000 gallon CSO discharge from South Mill Pond. Reported by City of Portsmouth on 1/13/03. Rainfall contributed to all three weekend closures	1/4/03 1/11/03 1/18/03
Little Harbor	3/23/03: 3.8 million gallons of undisinfected effluent from Portsmouth WWTF. Additional ~15,000 gallon overflow of raw sewage from WWTF on 4/1/03	3/29/03 4/4/03
Hampton Seabrook	2/4/03: 25,000 gallons of undisinfected effluent from Hampton WWTF	2/8/03
Atlantic Coast	None	None

Paralytic Shellfish Poisoning Closures

After a series of low (<44) PSP levels in blue mussels to start the PSP monitoring season, an increase in toxicity was observed in early June. When the June 3, 2003 sample from Star Island exceeded the 80 microgram limit, a closure to the offshore aquaculture site was immediately instituted, and sampling at secondary stations in the nearshore environment (Rye Ledge, Little Harbor) began. Soon after this event, neighboring states began observing increased PSP levels at their sites, and implemented closures as well. Samples from numerous New Hampshire locations the following week showed elevated levels of toxin. Although no inshore sampling stations exceeded the 80 microgram threshold, the elevated toxin levels, coupled with high and rising toxin levels in

southern Maine waters, prompted DES to extend the closure to all Atlantic coast growing waters on June 13, 2003. Continued sampling at primary and secondary sampling stations, including two stations in the Great Bay Estuary (oyster and mussel sampling), continued in June. A continuation of the elevated, and in some cases rising, toxin levels were observed at all sites during the week of June 16, 2003, as well as during the week of June 23, 2003. Subsequent tests showed decreasing toxin levels, allowing the closure to be lifted in July. The closure affecting offshore Atlantic waters was implemented on June 4, 2003, and lifted on July 8, 2003 (35 days). The closure affecting all Atlantic Coastal waters was implemented on June 13, 2003, and lifted on July 2, 2003 (19 days).

Blue mussels collected from Star Island, Isles of Shoals. Mussels from Hampton Harbor are placed in plastic mesh cages, transplanted to Star Island, and collected weekly in the spring, summer, and fall for "red tide" testing. This sampling program is a cooperative effort among DES, the Isles of Shoals Steamship Company, the Star Island Corporation, and the volunteers of the Great Bay Coast Watch (DES Shellfish Program photo)

In response to elevated/high levels at some stations, the State of Maine implemented another closure in the fall of 2003; however, New Hampshire sites did not show any sign of elevated or high toxicity during this period, so no additional closures were implemented.

Seasonal/Marina Closures

Areas with large concentrations of boats (marinas, mooring fields) pose a seasonal risk of sewage contamination. Some of these marinas/mooring fields are adjacent to shellfishing areas that are available for harvest on a conditional basis. Weekly surveys (spring and fall) of the number of boats present (especially those likely to have sanitary waste disposal equipment) determine when these areas are seasonally opened and closed. Table 2 summarizes the dates that conditionally approved areas were closed and reopened as a result of these surveys.

Table 2: Seasonal Closures and Reopenings Adjacent to Marinas and Mooring Fields

Area	Date Closed	Date Reopened	Comments
Hampton/Seabrook	6/1/03	11/1/03	A sufficient number of boats had been hauled out by 10/20/03; seasonal closure kept in place due to ongoing water quality concerns
Little Harbor	5/23/03	10/28/03	A sufficient number of boats had been hauled out by 10/28/03; seasonal closure kept in place until 11/15/03 because of heavy rainfall events
Lower Little Bay	6/1/03	11/2/03	Seasonal closure coincident with F&G seasonal closure
Upper Little Bay	7/28/03	9/24/03	None

UPDATE OF GROWING AREA CLASSIFICATIONS

The official list of all New Hampshire shellfish growing areas is presented in Appendix 1. Fecal coliform data used to calculate the NSSP statistics presented below are in Appendix 2. The reader should note that for most sites, only the most recent 30 samples in Appendix 2 were used for calculation of statistics. Furthermore, Appendix 2 also summarizes the rainfall and seasonal criteria applied to the data, which vary for different growing areas, for statistical calculations.

Great Bay

The Great Bay growing area includes 3,033 acres of Approved waters, 742 acres of Restricted waters, and 442 acres of Prohibited waters (Figure 7).

NSSP statistics for Great Bay sites are presented in Table 3. Water quality data for these sites, which are all located in the Approved area, generally show low fecal coliform levels and indicate water quality that is consistent with the Approved classification. The only change to this area's classification involved the rainfall threshold to trigger an "emergency closure," which was changed from 3.0 inches to 2.5 inches. This revision was implemented at all growing waters in coastal New Hampshire.

Table 3: NSSP Statistics for Stations in Great Bay
(Refer to Figure 1 for sampling site locations)

	GB16	GB4A	GB5
Count	30	30	30
Geomean	5.6	6.2	4.2
Est. 90th	28.7	28.7	14.5
Class.	A	A	A

Little Bay

The Upper Little Bay growing area (Figure 7) includes 1,149 acres of Conditionally Approved waters, while the Lower Little Bay growing area (Figure 8) includes 658 acres of Conditionally Approved Waters and 44 acres of Prohibited/Safety Zone waters associated with the Little Bay Boat Club and and Great Bay Marine, Inc. NSSP statistics for Little Bay sites are presented in Table 4. Water quality data for these sites generally show low fecal coliform levels and indicate water quality that is consistent with the Approved classification.

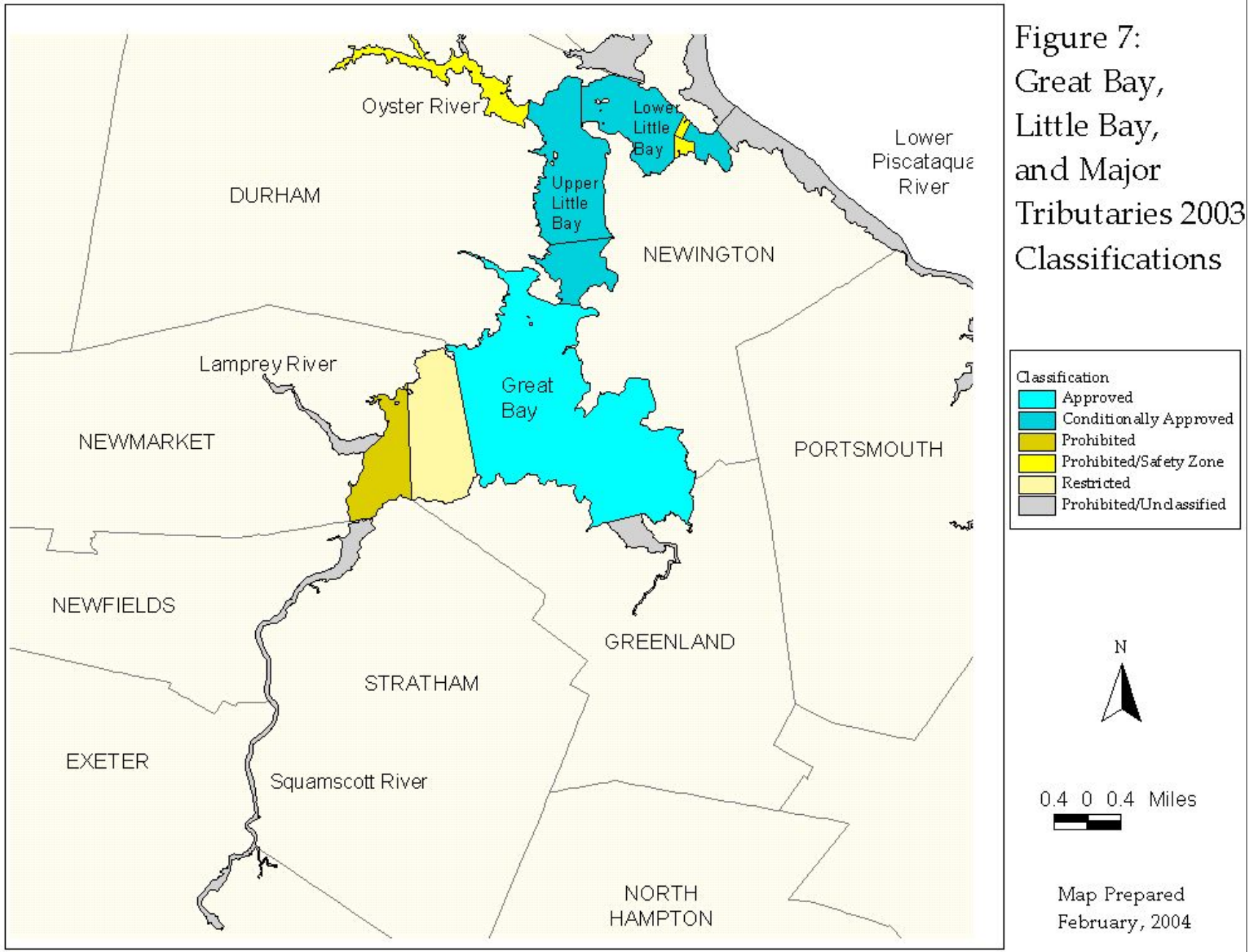


Figure 7: Great Bay, Little Bay, and Major Tributaries 2003 Classifications

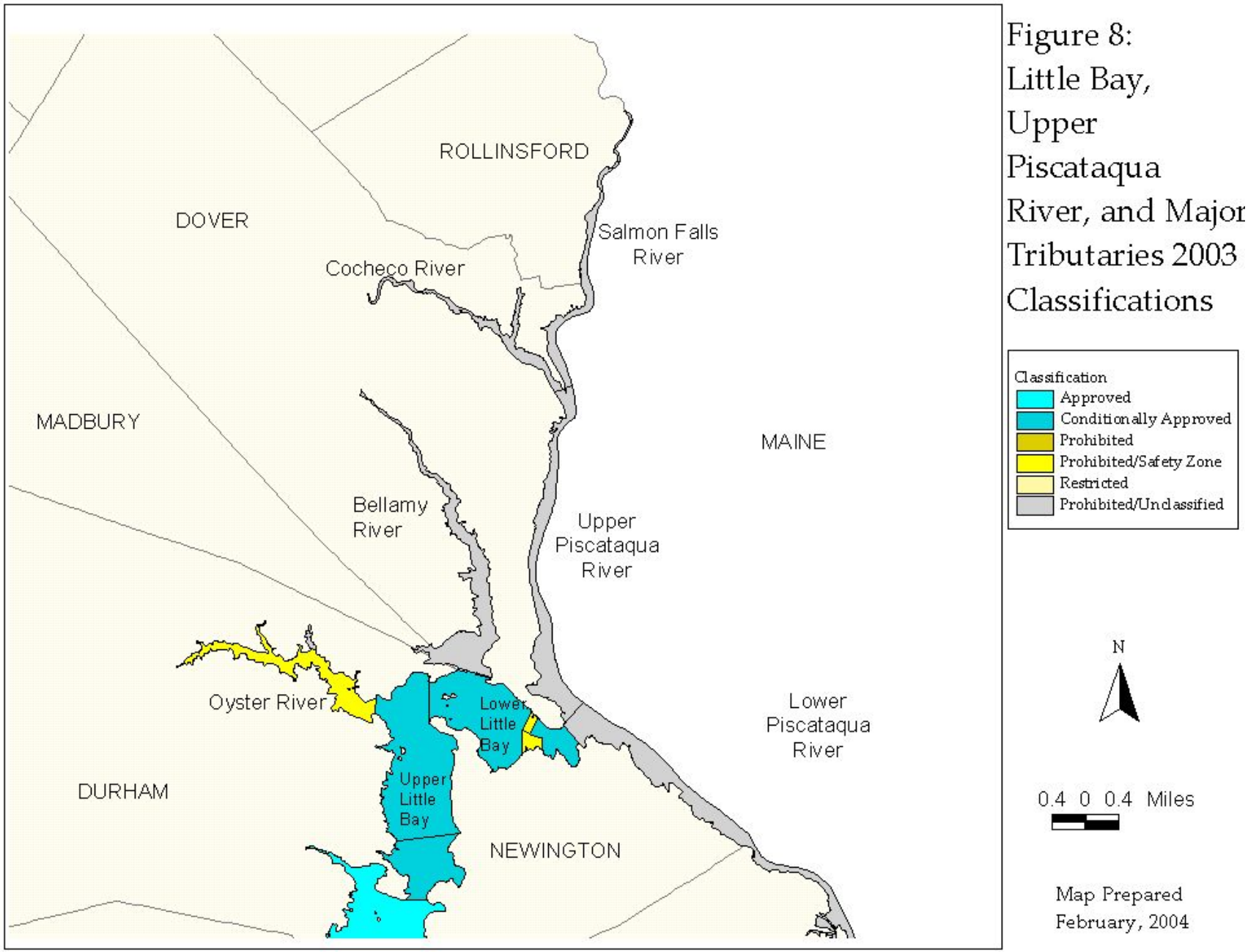

ROLLINSFORD
DOVER
Salmon Falls River
Cocheco River
MADBURY
MAINE
Bellamy River
Upper Piscataqua River
Oyster River
Lower Little Bay
Upper Little Bay
Lower Piscataqua River
DURHAM
NEWINGTON
Figure 8: Little Bay, Upper Piscataqua River, and Major Tributaries 2003 Classifications
Classification
Approved
Conditionally Approved
Prohibited
Prohibited/Safety Zone
Restricted
Prohibited/Unclassified
N
0.4 0 0.4 Miles
Map Prepared February, 2004

Table 4: NSSP Statistics for Stations in Little Bay
(Refer to Figure 1 for sampling site locations)

	GB17	GB19	GB25	GB27	GB28	GB50	GB6	GB7A
Count	30	30	30	30	30	30	30	30
Geomean	6.3	5.5	9.1	5.9	5.2	6.5	5.7	7.1
Est. 90th	29.9	27.5	40.3	29.0	21.3	32.5	22.2	34.6
Class.	A	A	A	A	A	A	A	A

The completion of a sanitary survey for the Oyster River in early 2003 brought several substantial changes to the classification of Little Bay. With the exception of the previously-classified marina safety zones, all of Little Bay (including the northwest segment of Lower Little Bay that had been Prohibited/Unclassified) were reclassified as conditionally approved, with the condition relating to proper operation and performance of the Durham wastewater treatment facility. Another condition will relate to the seasonal closures due to boat sewage concerns. Seasonal closures and reopenings, likely to occur in spring and fall, respectively, are based on weekly surveys of numbers of boats capable of discharging sewage, and the capacity of the surrounding waters (e.g., safety zones) to dilute potential sewage discharges to safe levels.

Piscataqua River

The Upper Piscataqua River growing area stretches from the mouths of the Cocheco and Salmon Falls rivers to Dover Point and includes 419 acres of Prohibited/Unclassified Waters (Figure 8). The Lower Piscataqua River growing area stretches from Dover Point to the northwest corner of New Castle and the southeast corner of Seavey Island, and includes 791 acres of Prohibited/Unclassified Waters (Figure 9).

NSSP statistics for Piscataqua River sites are presented in Table 5. Water quality data generally show high fecal coliform levels in the upper reaches of the river, with decreasing geometric means and measures of variability in the downstream direction. Work to complete a sanitary survey of the Upper Piscataqua River will continue in 2004. It is anticipated that at least some of the river around the Dover wastewater treatment plant outfall will become part of a Prohibited/Safety Zone. A dye study to enable delineation of this zone is tentatively scheduled for 2004, pending completion of a dredging project to correct sediment plugging of the outfall's diffuser ports.

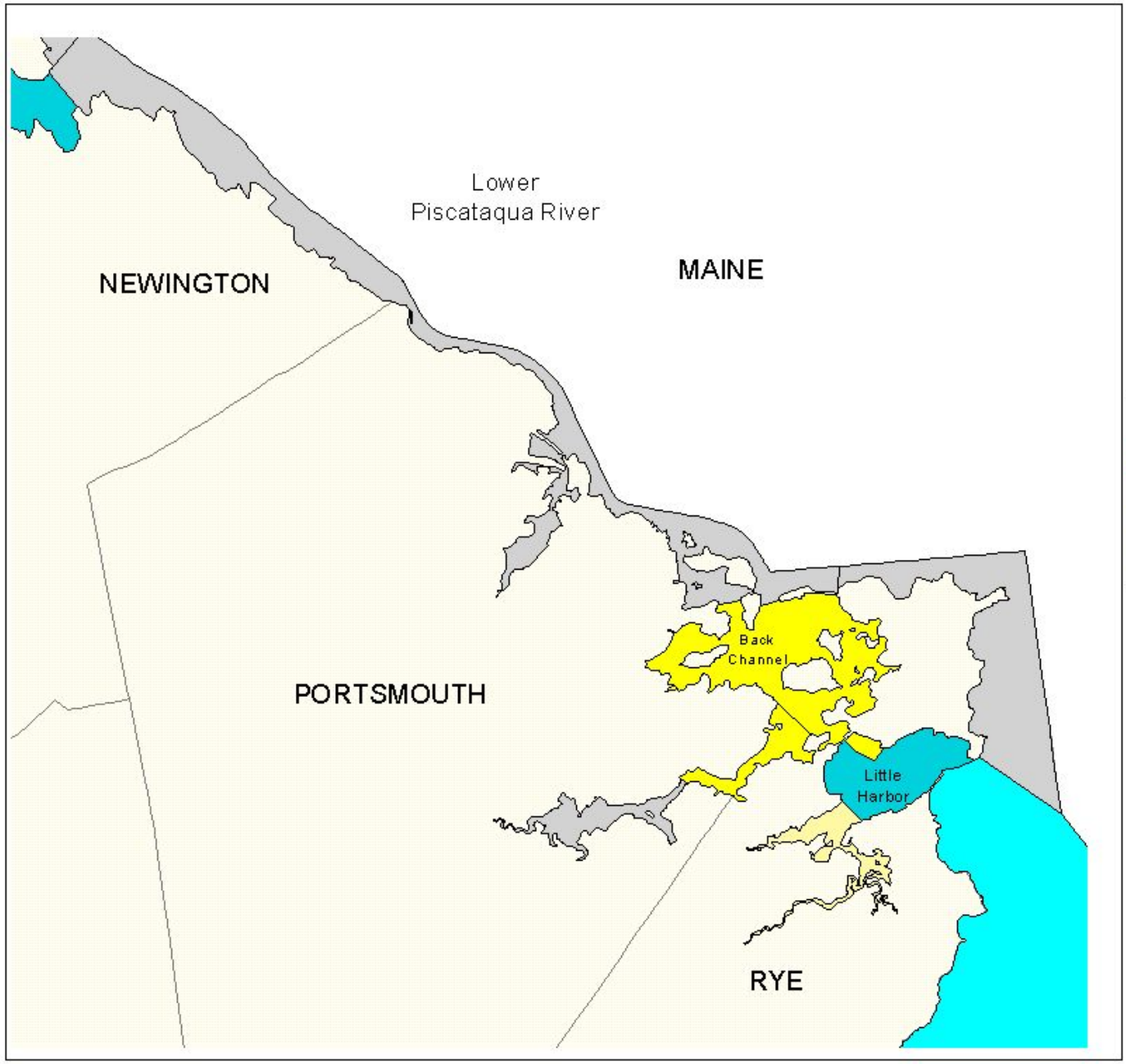


Figure 9: Lower Piscataqua River, Little Harbor, Back Channel 2003 Classifications

Classification
- Approved
- Conditionally Approved
- Prohibited
- Prohibited/Safety Zone
- Restricted
- Prohibited/Unclassified

N

0.4 0 0.4 Miles

Map Prepared
February, 2004

Table 5: NSSP Statistics for Stations in the Piscataqua River
(Refer to Figures 2 and 3 for sampling site locations)

	GB21	GB22	GBA7	GB20	GBA10	GBA11.5	GB18	GB24
Count	30	30	30	30	30	30	30	30
Geomean	44.0	21.9	27.6	21.4	14.8	7.6	6.8	6.4
Est. 90th	177.9	140.4	212.4	118.8	81.6	34.2	33.4	31.2
Class.	R	R	R	R	R	R	A	A

Bellamy River

The Bellamy River growing area stretches from the head-of-tide in Dover to the mouth of the River at the Route 4/Scammel Bridge (Figure 8). All waters in this 432-acre area are Prohibited/Unclassified.

NSSP statistics for Bellamy River sites are presented in Table 6. The highest and most variable fecal coliform levels are found in the upstream sites, with decreasing geometric means and measures of variability observed in the downstream direction. The only site that meets Approved criteria is Site GB2, located at the mouth of the river at the Scammel Bridge. It is possible that other sites could meet the Conditionally Approved classification with appropriate rainfall conditions, and a good deal of effort to complete a sanitary survey has been accomplished. Before any areas can be considered for harvesting, a careful examination of municipal sewage collection infrastructure (pump stations, sewer lines, etc.) is needed to assess the risk of overflows and the City of Dover's ability to quickly detect and report these events. This examination will be conducted in 2004, with a decision on how to proceed with the sanitary survey to follow.

Table 6: NSSP Statistics for Stations in the Bellamy River
(Refer to Figure 1 for sampling site locations)

	GB2	GB33	GB34
Count	30	30	24
Geomean	5.5	8.7	8.5
Est. 90th	27.6	60.6	60.2
Class.	A	R	N

Little Harbor/Back Channel

The Little Harbor and Back Channel growing areas (Figure 9) were reclassified in December 2001 to include 512 acres of Prohibited/Safety Zone around the Portsmouth wastewater treatment plant outfall and Wentworth Marina, 93 acres of Restricted waters upstream of Sheafes Point, 198 acres of Conditionally Approved waters in Little Harbor, and 96 acres of Prohibited/Unclassified waters in Sagamore Creek upstream of the Route 1A bridge.

NSSP statistics for Little Harbor sites are presented in Table 7. Fecal coliform data in Little Harbor meet Conditionally Approved criteria (0.50-inch rainfall criterion, seasonal closures for boat sewage concerns). Note that several of the sites in Table 7, namely the "LHB" sites, are relatively new, having been created in 2001. Seasonal closures for boat sewage are based on weekly surveys of numbers of boats capable of discharging sewage, and the capacity of surrounding waters to dilute potential discharges to safe levels.

Table 7: NSSP Statistics for Stations in Little Harbor
(Refer to Figure 3 for sampling site locations)

	LHB1	LHB2	T13	LHB13	T6	LHB6	T14	T7
Count	15	16	30	16	30	15	30	30
Geomean	3.4	4.0	4.3	4.8	4.1	3.9	13.8	20.9
Est. 90th	8.1	8.0	14.1	14.0	10.3	12.3	83.0	135.5
Class.	N	N	A	N	A	N	R	R

NSSP statistics for Back Channel sites are presented in Table 8. Fecal coliform data generally meet Conditionally Approved criteria at some sites, although the 2001 sanitary survey classifies all of Back Channel as part of a Prohibited/Safety Zone for the Portsmouth wastewater treatment facility.

Table 8: NSSP Statistics for Stations in Back Channel
(Refer to Figure 3 for sampling site locations)

	LHB16	LHB5	LHB8	LHB9
Count	16	15	16	16
Geomean	4.9	3.9	5.4	9.2
Est. 90th	19.8	9.6	16.4	31.8
Class.	N	N	N	N

Atlantic Coast

The Atlantic Coast growing area extends to the three-mile limit under the state's jurisdiction and includes the New Hampshire waters around the Isles of Shoals (Figure 10). The growing area includes 38,979 acres of Approved waters (half of which were previously classified as Conditionally Approved, but were reclassified at the start of 2003), 128 acres or Prohibited waters, and 3,001 acres classified as Prohibited/Safety Zone. In consultation with the US Food and Drug Administration,

DES changed the Conditionally Approved area to Approved (effective January 1, 2003). This change was not in response to a change in growing area sanitary quality, but rather was implemented to ensure consistent application of NSSP guidelines and procedures (i.e., reserving the use of the conditional classification for events and conditions that occur relatively frequently, while using emergency closure procedures for more infrequent events such as rainstorms of over three inches). Additionally, the rainfall threshold to trigger an area-wide emergency closure was changed from three inches to 2.5 inches.

NSSP statistics for Atlantic Coast shore sites are presented in Table 9. The results of the 2003 sampling program reveal a need to reclassify some areas. Sites AC3 and AC4B have historically shown good water quality, but both sites now show a degree of bacterial variability that exceeds the NSSP criterion for Approved waters. The results at AC4B are consistent with a change in a nearby pollution source, namely Little River. The flow from this tidal stream was dramatically increased as part of a saltmarsh restoration project, and monitoring data from the stream shows that bacterial loading has increased to the level that would adversely affect water quality at AC4B. Consequently, the current prohibited area around the mouth of the river needs to be expanded. The results at site AC3 were largely caused by a very high bacterial result from a sample collected in February 2003, and to a lesser extent by elevated FC levels observed in March and June of 2003. These results are not consistent with any change in pollution sources near the site, and examination of field notes, weather data, shoreline conditions, and nearby sewage collection infrastructure performance gave no explanation for the high bacteria counts. A new prohibited area around this site needs to be established. Recommendations for the new prohibited areas at both sites, which will call for a closed-area radius of 1,500 feet, are detailed in a 2004 DES Shellfish Program report *Triennial Shellfish Growing Area Update for the Atlantic Coast, Gulf of Maine, New Hampshire*.

One other change to shoreline sampling stations involves the discontinuation of site AC1, and the creation of site AC1A. When the Atlantic Coast sanitary survey was originally published in 2000, the southernmost sampling site was AC1, located on Seabrook Beach and within the borders of the safety zone for the Seabrook WWTF. Per the recommendations in the original sanitary survey, a dye study on the facility was done in 2001. The study confirmed that the northern extent of the safety zone should remain at the jetty near the entrance to Hampton Harbor. In order to continually monitor the adequacy of this boundary sampling at site AC1 was discontinued in 2003 in favor of a new site (AC1A), located at the boundary of the safety zone. Water quality at this new site appears to meet Approved criteria (although 30 samples have not yet been collected), and is similar to that of nearby Site AC2. Once the required minimum of 30 samples is achieved, sampling at site AC2 will likely be discontinued.

Table 9: NSSP Statistics for Stations on the Atlantic Coast/Shore Sites
(Refer to Figures 4a and 4b for sampling site locations)

	AC1A	AC2	AC3	AC4B	AC10	AC5A	AC6G	AC7B	AC8
Count	9	30	30	30	30	30	30	30	30
Geomean	3.4	5.9	7.6	9.6	4.2	6.0	5.2	3.7	5.9
Est. 90th	11.4	24.9	55.9	67.3	13.7	40.6	22.1	14.4	32.4
Class.	N	A	R	R	A	A	A	A	A

While the classification of Atlantic waters largely relies on the water sampling conducted at the shoreline sites (due to their proximity to potential/actual pollution sources), the DES continues to conduct sampling at boat sites as well. With the exception of ACB20, each of these sites is paired with a corresponding shore site and is located approximately 500 - 1000 feet from shore. Site ACB20 is located well offshore, approximately one nautical mile south of White Island. Statistics for these sites (Table 10) show compliance with Approved criteria.

Table 10: NSSP Statistics for Stations on the Atlantic Coast/Boat Sites
(Refer to Figures 4a and 4b for sampling site locations)

	ACB1	ACB1A	ACB2	ACB3	ACB4	ACB5	ACB6	ACB7	ACB8	ACB20
Count	25	7	30	30	30	30	30	30	28	30
Geomean	3.9	3.5	2.5	2.3	2.2	2.3	2.3	2.4	2.6	2.0
Est. 90th	15.5	13.8	6.8	5.3	4.2	3.8	3.8	4.0	5.4	2.0
Class.	A	N	A	A	A	A	A	A	A	A

Rye Harbor

The Rye Harbor growing area includes 47 acres of water, all of which are classified as Prohibited/Unclassified (Figure 10). NSSP statistics for Rye Harbor sites are presented in Table 11. Site RH1, located in a tributary on the south side of the harbor, continues to show high and quite variable fecal coliform levels. Pollution source investigations by the DES Watershed Assistance Section are still ongoing in this area.

Table 11: NSSP Statistics for Stations in Rye Harbor
(Refer to Figure 4a for sampling site locations)

	RH1	RH2	RH3	RH4
Count	30	30	30	30
Geomean	19.9	6.4	4.1	10.2
Est. 90th	149.2	33.5	16.3	63.0
Class.	R	A	A	R

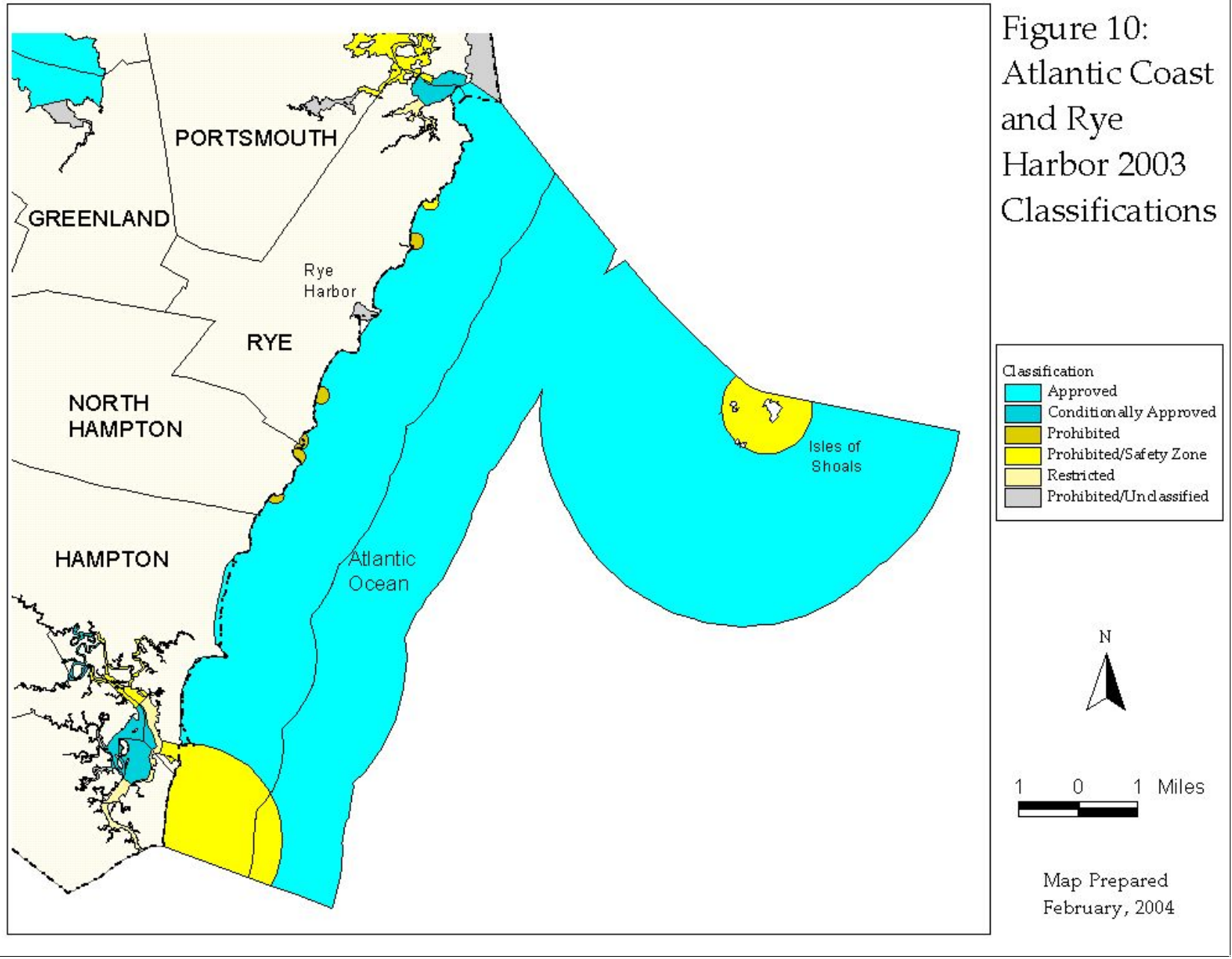


Figure 10: Atlantic Coast and Rye Harbor 2003 Classifications

Hampton/Seabrook Harbor

The Hampton/Seabrook Harbor and Tributaries growing area encompasses 1,068 acres, including 474 acres classified as Conditionally Approved, 264 acres classified as Restricted, 208 acres classified as Prohibited/Safety Zone, and 121 acres classified as Prohibited/Unclassified (Figure 11).

NSSP statistics for Hampton/Seabrook Harbor sites and for the Hampton Falls River/Taylor River sites are presented in Table 12 and 13, respectively. The conditions under which harvesting is allowed in this area are quite restrictive, including a shortened season of November-May, and a rainfall closure threshold of 0.25 inches (prior to January 1, 2003, the rainfall thresholds were 0.10 inches in November, April and May, and 0.25 inches in December, January, February, and March). Under these conditions, all sites meet Conditionally Approved criteria. Work to re-evaluate the current classification of all areas of the harbor itself is ongoing.

Table 12: NSSP Statistics for Stations in Hampton/Seabrook Harbor
(Refer to Figure 5 for sampling site locations)

	HH10	HH11	HH12	HH17	HH18	HH19	HH1A	HH2B	HH5B	HH5C
Count	30	30	30	30	30	30	30	30	30	30
Geomean	3.1	4.1	3.5	3.0	3.3	3.6	4.5	3.7	4.2	3.1
Est. 90^{th}	8.6	11.4	9.9	6.3	8.1	12.0	14.6	10.6	13.9	8.5
Class.	A	A	A	A	A	A	A	A	A	A

Table 13: NSSP Statistics for Stations in Hampton Falls and Taylor Rivers
(Refer to Figure 5 for sampling site locations)

	HH30	HH31	HH32	HH33	HH34
Count	21	21	21	21	21
Geomean	3.7	4.7	3.9	4.1	3.2
Est. 90^{th}	9.5	16.0	12.8	13.0	6.1
Class.	A	A	A	A	A

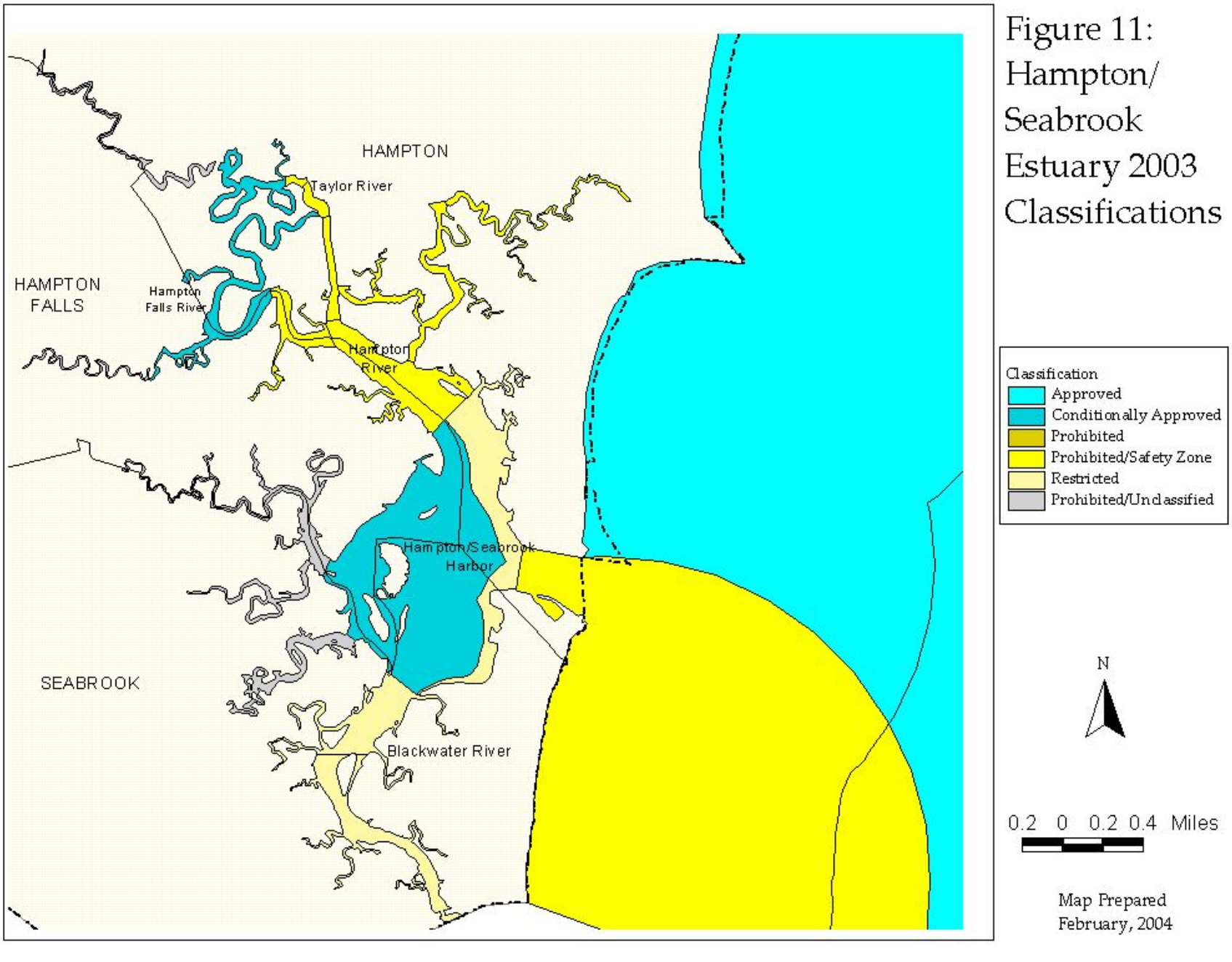


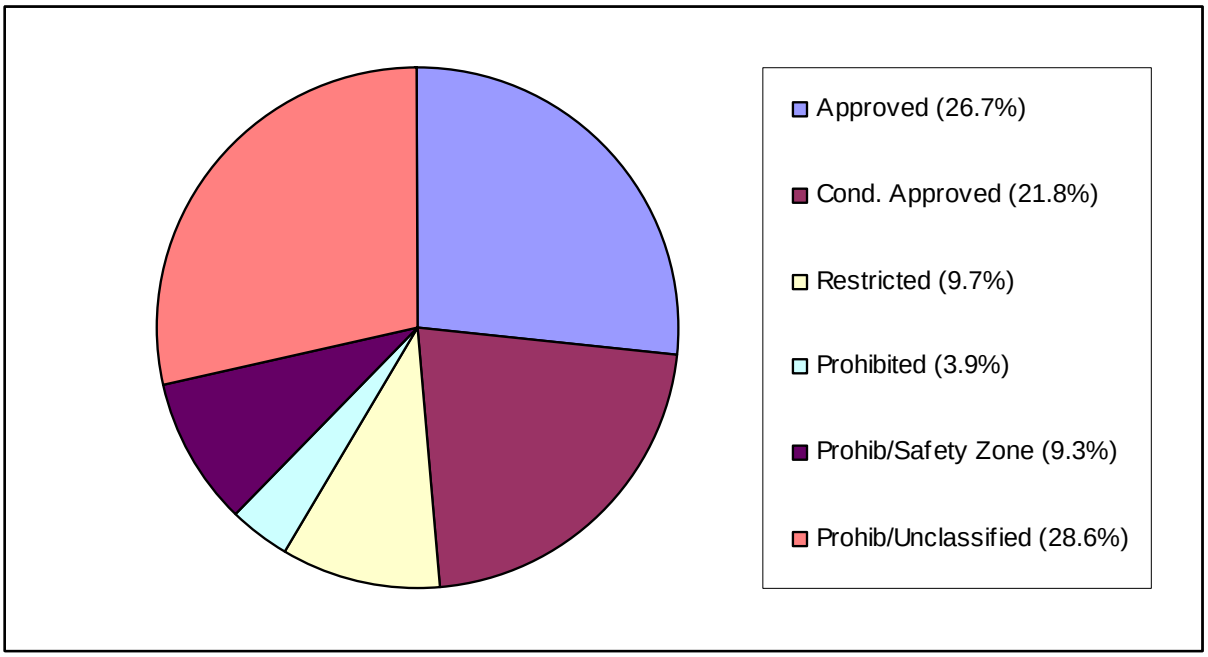
Figure 11: Hampton/ Seabrook Estuary 2003 Classifications

CLASSIFICATION SUMMARY

Summary of 2003 Classifications

A summary of estuarine acreage, grouped by classification in 2003, is given in Figure 12. Of the 11,355 acres of estuarine waters, 48.5 percent are open for harvesting (38.4 percent in 2003), while 22.9 percent (18.1 percent in 2002) are closed because of identified water quality problems or proximity to wastewater treatment plant outfalls and marinas. These changes are largely the result of the classification of the Oyster River (from "unclassified" to "prohibited/safety zone"), the reopening of almost 250 acres of water in Little Bay (from "unclassified" to "conditionally approved"), and the removal of the "Maine side" of the Piscataqua River from the database (these waters were retained and tracked in the database pending the outcome of a US Supreme Court decision on a border dispute between Maine and New Hampshire, which has since been decided in Maine's favor). The remaining 28.6 percent (43.6 percent in 2002) is currently unclassified. DES intends to survey and classify all of these areas by 2005.

Figure 12: 2003 Estuarine Shellfish Water Classifications



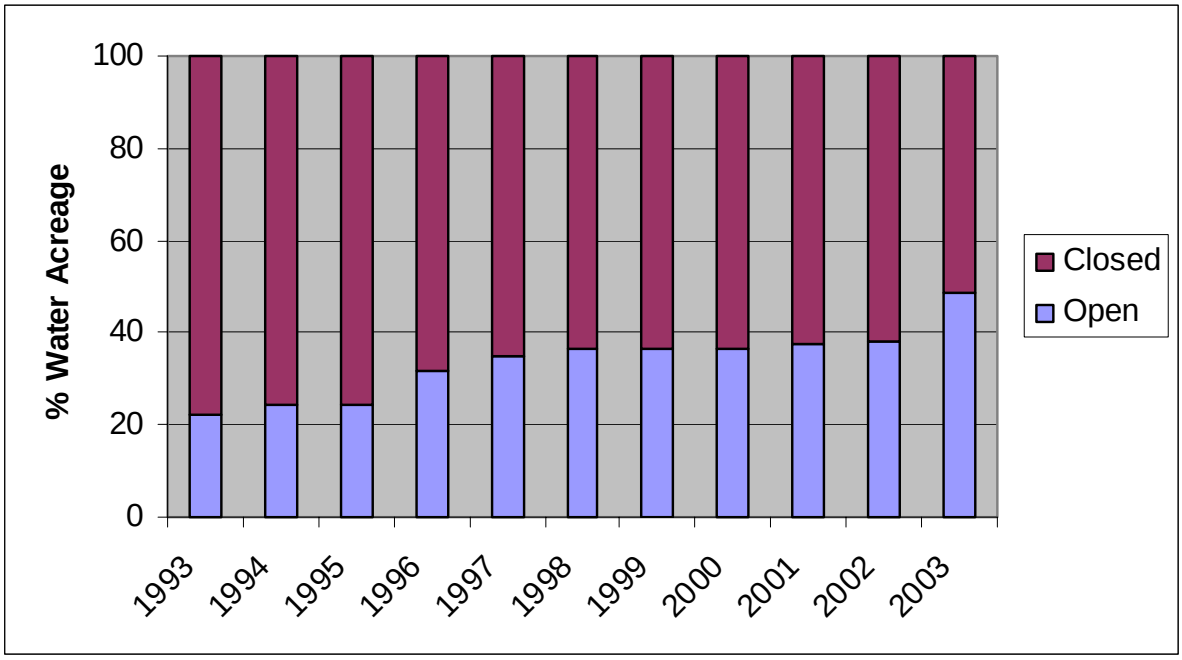
Status and Trends of Acres Open for Harvest

Since 1993, a great deal of effort has been focused on opening shellfish beds for harvesting. The increase in acreage open has included 387 acres in Hampton/Seabrook Harbor, 1,002 acres in Upper Little Bay, and 564 acres in Lower Little Bay. An additional 197 acres of estuarine waters

were reclassified as Conditionally Approved in portions of Little Harbor in late 2001, while approximately 86 additional acres were opened in 2002 in the Hampton Falls and Taylor rivers. Nearly 250 additional acres of waters in Little Bay were classified as Conditionally Approved in 2003 (Figure 13).

Figure 13 shows no increase in acreage for the period of 1998-2000. This is in part due to the fact that responsibilities for shellfish water classification shifted from the New Hampshire Department of Health and Human Services to the New Hampshire Department of Environmental Services in 1999, and completion of sanitary surveys begun in that year were delayed because of the transition. Furthermore, a major effort in 2000 involved classifying the 42,149 acres of Atlantic Coastal Waters. These are coastal, not estuarine, waters and therefore do not appear in Figure 13. The sanitary survey for these waters resulted in the reopening of 38,973 acres, or 92.5 percent of total coastal waters.

Figure 13: Trends in Estuarine Shellfish Water Openings, 1993-2003



Open/Closed Acre-Days (by Area)

While tracking the number of acres of shellfish waters is useful in measuring progress to open shellfish waters, it does not give a completely accurate picture of how often shellfish waters are actually open for harvesting. Nearly all shellfish waters are subject to temporary closures due to rainfall conditions, wastewater treatment plant upsets, and other factors. A more accurate measure of how frequently the shellfish areas are open for harvesting is to compare the number of days the flats *were* open to the number of days the flats *could be* open.

For this analysis, all growing waters listed in Appendix 1 were categorized as a softshell clam area or an oyster area. Clam areas in 2003 could be open for a total of 39 days (Saturdays for the clamming season, defined by New Hampshire Fish and Game as the day after Labor Day to end of May), while oyster areas in 2003 could be open for a total of 303 days (all days of the week for the oystering season, defined by New Hampshire Fish and Game as all months except July and August. Note that the F&G ban on oyster harvesting through winter ice is not considered in the 303 day figure due to year-to-year variations in the spatial and temporal extent of ice cover). By multiplying these numbers by the acreage values for each growing area and summing the total, a total possible acre-day value is derived. DES Shellfish Program records for the harvesting season were then used to determine the actual number of open days for each growing area, and similar calculations were performed to determine total actual acre-days open. For all 11,355 acres of estuarine growing waters, there were 1,761,000 possible open acre-days. The actual number of open acre-days was 827,097.6 or 47.0 percent of the total. This is slightly lower than the 47.1 percent figure calculated for 2000. The decrease is due to the relatively large number of days closed due to WWTF/CSO issues in Great Bay, Little Bay, and Little Harbor. A number of rainfall closures in a rather wet spring and fall also contributed. Calculations for selected open areas (Hampton/Seabrook, Great Bay, Little Bay, and Little Harbor) are presented in Table 14.

Table 14: Percent Open Acre-Days for Hampton/Seabrook, Great Bay, Little Bay, and Little Harbor for Calendar Year 2003

Area	Open Water Acres	Possible # of Open Days	Actual # of Open Days	Possible Acre-Days Open	Actual Acre-Days Open	%Actual Acre-Days Open
Hampton/Seabrook (clam)	1068.19	39	14	41659.4	6633.1	15.9
Great Bay (oyster)	4216.65	303	255	1277645	773323.2	60.5
Little Bay (clam)	1850.63	39	20-28	72174.6	44962.3	62.3
Little Harbor (clam)	899.92	39	11	35096.9	2178.1	6.2

CONCLUSIONS AND WORK FOR 2004

The DES Shellfish Program has responsibility for classifying the shellfish growing waters of the State of New Hampshire. Of the 11,355 acres of estuarine waters, 71.4 percent are classified, while 28.6 percent are unclassified. On an acreage-only basis, 48.5 percent are currently open for harvesting, while on an acre-day basis 47.0 percent were open in 2003. All of the 42,102 acres of Atlantic coastal waters are classified, with 92.5 percent of all acres open for harvesting. For the first time since 1998, paralytic shellfish poisoning closures were instituted on the Atlantic Coast for most of June and part of July. An unusually high number of “emergency” closures were necessary following discharges of improperly treated sewage, including five events affecting Great Bay and Little Bay, two events affecting Little Harbor, and one event affecting Hampton/Seabrook. High bacteria levels associated with a heavy rainfall event in late October prompted an additional emergency closure in Great Bay. Routine water sampling data collected over the last several years, including the nearly 800 samples collected during the course of 56 sampling trips in 2003, support the current classifications of all waters currently open for harvesting, although some changes will be

implemented in 2004. The most significant changes will occur on the Atlantic Coast, where a triennial review of the sanitary survey indicates that an expansion of the closed area around Little River is warranted, as is the establishment of a new closed area on North Beach. A reconfiguration of the closed "safety zone" around the Seabrook WWTF, per the results of a dye/dilution study, will reduce the overall area closed around the outfall. Sanitary survey work in 2004 will focus on completing projects in Great Bay, Little Bay, and the Bellamy River, and continuing survey work already in progress in Hampton/Seabrook, the Cocheco River, Salmon Falls River, and Upper Piscatqua River. A dye/dilution study on the Dover wastewater plant, which is needed to properly classify the Upper Piscataqua River and other nearby waterbodies, is tentatively scheduled for 2004. A triennial evaluation of Little Harbor and Back Channel is scheduled for 2004.

APPENDIX 1
Shellfish Water Classification and Acreage

Note: recalculation of acreage using the state gis system resulted in a minor change in overall acreage from 2002 values. Also note that Maine waters (2385.35 acres) in the Piscataqua River, Salmon Falls River, and Portsmouth Harbor are no longer reported in the estuarine total.

AREA	WATERBODY UNIT	CLASSIFICATION	OPEN/ CLOSED	WATER TYPE	WATER ACRES
ATLANTIC	Atlantic Ocean (3 mi)	Approved	OPEN	Ocean	38978.93
COAST	Bass Beach	Prohibited	CLOSED	Ocean	21.98
	Chapel Brook	Prohibited	CLOSED	Ocean	21.35
	Eel Pond	Prohibited	CLOSED	Ocean	32.19
	Little River	Prohibited	CLOSED	Ocean	19.45
	Parsons Creek	Prohibited	CLOSED	Ocean	33.14
	Seabrook WWTP out.	Prohibited/Safety Zone	CLOSED	Ocean	2173.43
	Star Island WWTP out.	Prohibited/Safety Zone	CLOSED	Ocean	803.97
	Wallis Sands WWTP out.	Prohibited/Safety Zone	CLOSED	Ocean	23.71
	Rye Harbor	Prohibited/Unclassified	CLOSED	Estuary	46.98
LITTLE	Back Channel	Prohibited/Safety Zone	CLOSED	Estuary	421.70
HARBOR	Upper Sagamore Creek	Prohibited/Unclassified	CLOSED	Estuary	95.88
AND BACK	Lower Sagamore Creek	Prohibited/Safety Zone	CLOSED	Estuary	76.25
CHANNEL	Little Harbor	Conditionally Approved	OPEN	Estuary	198.01
	Wentworth Marina	Prohibited/Safety Zone	CLOSED	Estuary	14.73
	Witch Creek	Restricted	CLOSED	Estuary	93.35
GREAT BAY	Lamprey River	Prohibited/Unclassified	CLOSED	Estuary	102.58
TRIBUTARIES	Squamscott River	Prohibited/Unclassified	CLOSED	Estuary	306.55
	Winnicut River	Prohibited/Unclassified	CLOSED	Estuary	123.51
	Bellamy River	Prohibited/Unclassified	CLOSED	Estuary	432.52
	Oyster River	Prohibited/Safety Zone	CLOSED	Estuary	285.56
	Oyster River	Prohibited/Unclassified	CLOSED	Estuary	11.24
	Cocheco River	Prohibited/Unclassified	CLOSED	Estuary	158.26
	Salmon Falls River(NH)	Prohibited/Unclassified	CLOSED	Estuary	181.25
GREAT BAY	Great Bay App.	Approved	OPEN	Estuary	3032.64
	Great Bay Rest.	Restricted	CLOSED	Estuary	741.76
	Great Bay Prohib.	Prohibited	CLOSED	Estuary	442.25
LITTLE BAY	Upper Little Bay	Conditionally Approved	OPEN	Estuary	291.58
	Upper Little Bay	Conditionally Approved	OPEN	Estuary	857.41
	Lower Little Bay	Prohibited/Safety Zone	CLOSED	Estuary	16.09
	Lower Little Bay	Prohibited/Safety Zone	CLOSED	Estuary	28.02
	Lower Little Bay	Conditionally Approved	OPEN	Estuary	107.00
	Lower Little Bay	Conditionally Approved	OPEN	Estuary	550.53

AREA	WATERBODY UNIT	CLASSIFICATION	OPEN/ CLOSED	WATER TYPE	WATER ACRES
HAMPTON HARBOR AND TRIBUTARIES	Hampton River 1	Prohibited/Safety Zone	CLOSED	Estuary	89.07
	Hampton Falls River	Prohibited/Unclassified	CLOSED	Estuary	7.09
	Browns River	Prohibited/Unclassified	CLOSED	Estuary	46.16
	Hunts Island Creek	Prohibited/Unclassified	CLOSED	Estuary	16.00
	Mill Creek	Prohibited/Unclassified	CLOSED	Estuary	31.35
	Blackwater River 2	Restricted	CLOSED	Estuary	71.08
	Blackwater River 1	Restricted	CLOSED	Estuary	69.48
	Taylor River	Prohibited/Unclassified	CLOSED	Estuary	20.94
	Hampton River 3	Conditionally Approved	OPEN	Estuary	386.97
	Hampton River 2	Restricted	CLOSED	Estuary	123.85
	Blind Creek	Prohibited/Safety Zone	CLOSED	Estuary	12.43
	Nudds Canal	Prohibited/Safety Zone	CLOSED	Estuary	13.50
	Tide Mill Creek 2	Prohibited/Safety Zone	CLOSED	Estuary	34.31
	Tide Mill Creek 1	Prohibited/Safety Zone	CLOSED	Estuary	21.66
	Taylor River	Conditionally Approved	OPEN	Estuary	29.66
	Taylor River-Marina	Prohibited/Safety Zone	CLOSED	Estuary	2.52
	Taylor River	Conditionally Approved	OPEN	Estuary	11.79
	Taylor River	Prohibited/Safety Zone	CLOSED	Estuary	6.92
	Upp. Hmp. Falls River	Conditionally Approved	OPEN	Estuary	45.37
	Low. Hmp. Falls River	Prohibited/Safety Zone	CLOSED	Estuary	28.04
PISCATAQUA RIVER	Upp. Piscataqua River(NH)	Prohibited/Unclassified	CLOSED	Estuary	419.16
	Low. Piscataqua River(NH)	Prohibited/Unclassified	CLOSED	Estuary	791.06
PORTSMOUTH HARBOR	Portsmouth Harbor (NH)	Prohibited/Unclassified	CLOSED	Estuary	461.36

APPENDIX 2
Fecal Coliform Data Used for Calculation of NSSP Statistics

GREAT BAY DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: July and August; data with antecedent (four-day) rainfall greater than 2.5 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	GB16	GB4A	GB5
0.00	03/24/00	2	6.8	2
0.90	04/12/00	2	4.5	2
0.00	05/10/00	4.5	13	2
0.08	06/06/00	2	23	2
0.12	09/25/00	2	2	2
1.12	10/10/00	2	2	2
0.81	11/07/00	33	6.8	11
0.26	04/12/01	7.8	7.8	4.5
0.11	05/17/01	2	2	2
0.53	06/28/01	11	4.5	2
0.02	09/06/01	2	2	2
0.09	10/10/01	2	2	2
0.34	11/05/01	4.5	23	4.5
0.00	12/10/01	2	2	1.8
0.32	02/25/02	4.5	4	14
0.54	03/20/02	4.5	49	4
0.88	04/02/02	2	2	2
0.53	05/06/02	2	2	2
1.07	06/19/02	4	2	4.5
0.79	09/18/02	2	2	2
0.94	10/14/02	2	2	6.8
1.19	11/14/02	33	13	23
0.00	12/02/02	33	46	33
0.74	04/25/03	2	2	2
1.52	04/28/03	17	11	7.8
2.14	05/27/03	240	11	27
0.69	06/03/03	49	79	23
0.21	09/23/03	4.5	1.8	2
0.53	10/06/03	2	6.8	2
0.11	11/12/03	17	23	7.8
0.00	11/19/03	2	33	11
0.00	12/08/03	17	7.8	2
	Count	30	30	30
	Geomean	5.6	6.2	4.2
	Est. 90th	28.7	28.7	14.5
	Class.	A	A	A

LITTLE BAY DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: July and August; data with antecedent (four-day) rainfall greater than 2.5 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	GB17	GB19	GB25	GB27	GB28	GB50	GB6	GB7A
1.21	03/29/99	4.5	1.8	13	17	6.8	4	4.5	7.8
0.00	04/05/99	11	2	4.5	1.8	7.8	4.5	13	7.8
0.00	05/03/99	1.8	4.5	1.8	1.8	1.8	6.1	1.8	1.8
0.92	10/18/99	33	1.8	26		17	33	1.8	6.8
0.00	11/01/99				13				
0.54	11/29/99	33	46	23		33	23	23	130
0.17	12/14/99	23	33	79	13	49	23	23	33
0.00	03/24/00	7.8	2	4.5	4.5	2	2	2	2
0.90	04/12/00	2	4.5	2	2	2	2	4.5	4.5
0.00	05/10/00	2	2	4.5	7.8	9.3	79	2	4.5
0.12	09/25/00	2	2	2	2	2	2	2	2
1.12	10/10/00	2	2	6.8	1.8	2	2	4	2
0.81	11/07/00	6.8	4.5	46	6.8	4.5	2	2	4.5
0.26	04/12/01							6.1	33
0.11	05/17/01	2	2	2	2	2	2	2	2
0.02	09/06/01	2	2	2	4.5	2	4.5	2	4.5
0.09	10/10/01	2	2	2	2	1.8	2	2	17
0.34	11/05/01	2	2	4.5	2	4	2	4.5	13
0.00	12/10/01	2	2	4.5	2	2	2	4.5	4.5
0.32	02/25/02	23	22	33	22	17	14	31	7.8
0.54	03/20/02	13	7.8	13	27	4.5	17	17	79
0.88	04/02/02	2	2	6.8	2	2	2	2	2
0.04	04/11/02						2		
0.53	05/06/02	2	2	4.5	2	2	2	4.5	2
0.79	09/18/02	2	2	4.5	2	2	2	4.5	2
0.94	10/14/02	23	6.8	17	79	7.8	4.5	7.8	2
0.26	10/23/02						7.8		
1.19	11/14/02	33	130	33	79	17	23	17	23
0.00	12/02/02	13	33	33	49	33	33	26	33
0.74	04/25/03	7.8	6.8	49	2	2	4.5	2	4.5
1.52	04/28/03	7.8	2	11	2	11	7.8	23	11
2.14	05/27/03	33	22	33	23	33	130	33	2
0.53	10/06/03							2	2
0.11	11/12/03	13	13	21	7.8	13	7.8	23	21
0.00	11/19/03	2	23	4.5	6.8	4.5	13	2	6.8
0.00	12/08/03	70	22	22	17	2	13	14	27
	Count	30	30	30	30	30	30	30	30
	Geomean	6.3	5.5	9.1	5.9	5.2	6.5	5.7	7.1
	Est. 90th	29.9	27.5	40.3	29.0	21.3	32.5	22.2	34.6
	Class.	A	A	A	A	A	A	A	A

PISCATAQUA RIVER DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: July and August; data with antecedent (four-day) rainfall greater than 2.5 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	GB21	GB22	GBA7	GB20	GB18	GBA 10	GBA 11.5	GB24
1.21	03/29/99	11	23	33	33	33	6.8	13	49
0.00	04/05/99	49	13	23	4.5	6.8	7.8	6.8	17
0.50	04/20/99	46	17	2	11	7.8	6.8		
0.00	05/03/99	49	7.8	23	4.5	4.5	4.5	1.8	4.5
0.00	05/18/99	79	17	79	11	2	4.5		
0.35	10/12/99	95	33	70	49	13	13		
0.92	10/18/99	240	79	920	49	33	14	6.8	3.6
0.00	11/01/99							11	7.8
0.54	11/29/99	130	240	130	130	49	33		
0.17	12/14/99	33	170	46	130	79	13	79	33
0.00	12/27/99	49	240	64	130	95	23		
0.00	03/24/00	17	40	1600	49	14	11	6.1	2
0.90	04/12/00	49	14	17	13	33	13	2	1.8
0.00	05/10/00	240	220	79	130	46	70	6.1	2
0.12	09/25/00	170	23	79	17	6.8	2	2	2
1.12	10/10/00	46	49	46	49	79	4.5	4.5	4.5
0.81	11/07/00	13	23	13	7.8	13	13	33	17
0.26	04/12/01	7.8	2	7.8	2	23	4	2	2
0.11	05/17/01	130	33	22	7.8	13	2	2	2
0.02	09/06/01	240	17	79	33	13	2	4.5	2
0.09	10/10/01	49	2	2	4.5	4.5	2	2	4
0.34	11/05/01	130	31	23	13	11	4	2	13
0.00	12/10/01	6.8	2	4.5	2	2	2	4.5	4.5
0.32	02/25/02	23	7.8	4.5	9.3	6.8	33	23	4
0.54	03/20/02	33	7.8	13	7.8	4	2	13	13
0.88	04/02/02	33	13	13	17	2	13	2	2
0.04	04/11/02				22	2	2		
0.53	05/06/02	33	23	23	13	23	2	2	13
0.79	09/18/02	26	4.5	7.8	4.5	2	2	1.8	4.5
0.94	10/14/02	23	7.8	14	6.8	11	23	23	49
1.19	11/14/02	49	79	110	240	49	23	49	23
0.00	12/02/02	23	13	79	70	23	13	2	2
0.74	04/25/03	33	4.5	2	11	2	4	4.5	2
1.52	04/28/03	49	33	23	110	49	17	22	17
2.14	05/27/03	540	350	220	170	350	70	130	350
0.11	11/12/03	22	13	22	13	11	11	13	23
0.00	11/19/03	13	7.8	4	22	7.8	2	13	6.8
0.00	12/08/03	13	13	11	11	33	17	11	6.1
	Count	30	30	30	30	30	30	30	30
	Geomean	44.0	21.9	27.6	21.4	14.8	7.6	6.8	6.4
	Est. 90th	177.9	140.4	212.4	118.8	81.6	34.2	33.4	31.2
	Class.	R	R	R	R	R	A	A	A

BELLAMY RIVER DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: July and August; data with antecedent (two-day) rainfall greater than 2.5 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	GB2	GB33	GB34
0.02	09/01/98	1.8	7.8	
0.00	11/09/98	7.8	7.8	
0.00	12/07/98	1.8	2	
1.21	03/29/99	14	23	
0.00	04/05/99	6.1		
0.00	05/03/99	1.8		
0.00	09/14/99	1.8		
0.00	11/01/99	7.8		
0.04	12/14/99	7.8		
0.00	03/24/00	2	17	
0.12	04/12/00	2	2	
0.00	05/10/00	13	33	
0.12	09/25/00	2	4	
0.00	10/10/00	2	11	7.8
1.18	10/19/00			540
0.81	11/07/00	2	2	2
0.11	05/17/01	2	2	2
0.02	09/06/01	2	49	2
0.09	10/08/01			13
0.00	10/10/01	2	2	2
0.10	11/05/01	2	13	4.5
0.00	12/10/01	2	2	2
0.00	02/25/02	79	6.8	11
0.54	03/20/02	49	79	49
0.77	04/02/02	2	2	4
0.03	04/11/02	2	2	2
0.00	05/06/02	2	2	2
0.79	09/18/02	4	7.8	4
0.94	10/14/02	4.5	4.5	17
0.26	10/23/02	4	2	4
1.19	11/14/02	49	130	110
0.00	12/02/02	31	49	22
0.09	04/25/03	2	2	2
1.43	04/28/03	7.8	130	22
2.10	05/27/03	33	170	79
0.11	11/12/03	17		
0.00	11/19/03	7.8	4.5	7.8
0.00	12/08/03	49	27	17
	Count	30	30	24
	Geomean	5.5	8.7	8.5
	Est. 90th	27.6	60.6	60.2
	Class.	A	R	N

LITTLE HARBOR DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: June, July and August; data with antecedent (two-day) rainfall greater than 0.5 inches; data that failed standard Quality Assurance checks. Note that sample collection at all boat ("LHB") sites began in May 2001. Samples prior to that date were collected from adjacent shore sites. Note: data censors not shown.

RAIN	DATE	LHB1	LHB2	T13	LHB13	T6	LHB6	T14	T7
0.04	09/21/99			33		17		110	130
0.00	09/28/99			11		79		33	140
0.45	10/04/99			1.8		14		11	34
0.05	10/13/99			4.5		64		7.8	17
0.00	11/01/99			4		2		7.8	22
0.06	11/02/99					4.5			
0.19	11/15/99			4		4		49	49
0.02	12/13/99			4.5		11		33	23
0.00	12/20/99			2		13		4	23
0.00	12/28/99			6.8		2		4.5	13
0.00	01/30/00			1.8		1.8		1.8	1.8
0.00	02/24/00			2		7.8		33	4.5
0.13	03/10/00			4.5		13		4	1.8
0.00	05/17/00			2		2		2	17
0.32	10/17/00			4.5		4		33	95
0.00	12/07/00			6.8		6.8		4.5	2
0.00	12/10/00					2		2	
0.18	12/12/00			17		4.5		79	
0.00	01/19/01			14		2		4.5	2
0.00	02/05/01			2		13		31	1.8
0.00	04/16/01			2		9.3		13	2
0.00	05/03/01	2	2	2	7.8	2	7.8	79	49
0.00	10/29/01	2	2	4.5	7.8	2	1.8	2	49
0.30	11/06/01	13	7.8	7.8	17	4.5	23	170	49
0.04	12/06/01	2	2	2	2	2	4.5	23	240
0.00	01/22/02	2	9.2	2	2	11	4.5	33	46
0.00	02/06/02	7.8	2	4	4	2	1.8	4.5	17
0.44	03/11/02	2	4	1.8	2	2	2	11	33
0.01	04/08/02	4.5	4.5	13	2	4	2	7.8	94
0.39	05/13/02	4.5	7.8	79	4.5	6.8	17	130	79
0.00	12/11/02		4.5	4	11	2		49	33
0.00	03/18/03	1.8	4	2	4.5	2	4.5	4.5	12
0.00	04/21/03	4	4	1.8	4.5	11	2	13	26
0.00	05/21/03	2	4.5	2	4.5	2	2	110	110
0.48	10/27/03	11	7.8	23	33	4.5	13	79	170
0.00	11/17/03	2	2	4.5	2	4.5	2	13	31
0.00	12/02/03	4.5	4.5	6.8	4.5	4	2	4	49
	Count	15	16	30	16	30	15	30	30
	Geomean	3.4	4.0	4.3	4.8	4.1	3.9	13.8	20.9
	Est. 90th	8.1	8.0	14.1	14.0	10.3	12.3	83.0	135.5
	Class.	N	N	A	N	A	N	R	R

BACK CHANNEL DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: June, July and August; data with antecedent (two-day) rainfall greater than 0.5 inches; data that failed standard Quality Assurance checks. Note that sample collection at all boat ("LHB") sites began in May 2001. Samples prior to that date were collected from adjacent shore sites. Note: data censors not shown.

RAIN	DATE	LHB16	LHB5	LHB8	LHB9
0.00	05/03/01	2	4	2	4
0.00	10/29/01	17	7.8	4.5	33
0.30	11/06/01	79	14	23	7.8
0.04	12/06/01	13	2	4.5	17
0.00	01/22/02	2	4	2	2
0.00	02/06/02	2	1.8	2	7.8
0.44	03/11/02	2	4	2	6.8
0.01	04/08/02	4.5	2	7.8	2
0.39	05/13/02	6.1	7.8	6.8	21
0.00	12/11/02	7.8		13	17
0.00	03/18/03	2	2	7.8	4.5
0.00	04/21/03	2	4.5	2	7.8
0.00	05/21/03	2	2	11	7.8
0.48	10/27/03	13	13	27	33
0.00	11/17/03	2	2	4.5	4.5
0.00	12/02/03	7.8	4	4.5	49
	Count	16	15	16	16
	Geomean	4.9	3.9	5.4	9.2
	Est. 90th	19.8	9.6	16.4	31.8
	Class.	N	N	N	N

ATLANTIC COAST (SHORE) DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: data with antecedent (three-day) rainfall greater than 2.5 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	AC1A	AC2	AC3	AC4B	AC10	AC5A	AC6G	AC7B	AC8
0.00	02/14/01		2	2	2	2	2	2	2	4
0.00	03/07/01		1.8	4.5	2	2	2	2	2	2
0.00	04/26/01		4.5	2	2	13	2	7.8	2	2
0.00	05/01/01		2	2	4	4.5	2	17	2	2
0.00	06/07/01		31	2	2	2	2	4.5	2	4.5
0.73	07/10/01		4	4.5	7.8	7.8	4	2	2	2
0.00	08/08/01		22	79	33	4	33	17	4.5	2
0.08	09/20/01		7.8	7.8	33	17	49	46	4.5	2
0.35	10/15/01		49	6.8	7.8	11	4.5	49	7.8	2
0.29	11/26/01		2	4.5	4	2	2	2	2	2
0.92	12/20/01		1.8	7.8	4.5	2	2	7.8	2	4.5
0.00	01/28/02		7.8	2	350	7.8	13	2	2	2
0.61	02/11/02		11	22	79	6.8	2	2	2	4.5
0.00	03/25/02		33	7.8	31	2	1.8	2	2	1.8
0.02	04/22/02		4.5	2	4	2	4.5	17	350	13
0.90	05/21/02		2	4.5	2	2	1.8	2	2	2
0.03	07/09/02		4.5	13	6.8	14	7.8	79	6.8	11
0.00	08/12/02		2	2	79	2	130	17	7.8	23
0.24	09/03/02		49	70	27	27	46	4.5	4.5	17
0.00	10/21/02		49	2	2	2	2	2	4.5	4.5
1.53	11/19/02		13	22	22	17	17	4.5	7.8	33
0.00	02/12/03		2	1600	14	2	2	13	4	94
0.00	03/12/03	4.5	4	49	4.5	2	7.8	4	1.8	170
1.24	04/01/03	1.8	2	4.5	1.8	2	2	2	2	4.5
0.05	05/06/03	9	7.8	2	7.8	2	6.8	1.8	2	2
0.35	06/16/03	27	11	79	170	23	540	4.5	4.5	33
0.12	07/23/03	2	1.8	2	2	2	2	4.5	17	51
0.01	09/08/03	2	2	11	79	11	9.3	1.8	7.8	4.5
0.92	10/14/03	2	4.5	3.7	2	2	27	6.8	2	3
0.00	11/17/03	2	2	2	17	2	2	2	2	17
0.00	12/29/03	2	6.8	4.5	2	2	2	2	2	2
	Count	9	30	30	30	30	30	30	30	30
	Geomean	3.4	5.9	7.6	9.6	4.2	6.0	5.2	3.7	5.9
	Est. 90th	11.4	24.9	55.9	67.3	13.7	40.6	22.1	14.4	32.4
	Class.	N	A	R	R	A	A	A	A	A

ATLANTIC COAST (BOAT) DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: data with antecedent (three-day) rainfall greater than 2.5 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	ACB 1	ACB 1A	ACB2	ACB3	ACB4	ACB5	ACB6	ACB7	ACB8
0.00	02/02/99	4.5		1.8						
0.62	03/24/99	1.8		1.8	1.8	2	1.8	1.8	2	
0.18	09/20/99	1.8		4.5	1.8	1.8	4.5	2	2	
0.15	12/13/99	6.8		2	1.8	1.8	1.8	2	2	
0.14	05/23/00	2		2	2	2	2	2	2	2
0.00	05/31/00	2		2	2	2	2	2	2	2
0.56	06/19/00	2		2	2	2	2	2	2	7.8
0.56	07/10/00	2		2	2	2	2	2	2	2
0.11	07/24/00	4.5		2	2	2	2	2	2	2
0.67	08/09/00	2		2	2	2	2	2	2	2
0.05	08/21/00	2		2	2	2	4.5	7.8	2	2
0.12	09/06/00	7.8		2	2	2	2	2	2	2
0.00	10/25/00	2		2	2	2	2	2	2	4.5
0.26	05/14/01	130		2	2	2	2	2	2	2
1.55	06/04/01	2		2	2	2	2	2	4	2
0.03	08/30/01	4.5		2	2	2	2	2	2	2
0.08	09/20/01	7.8		4.5	2	11	13	4.5	7.8	2
0.00	10/03/01	2		2	2	2	2	2	2	4.5
0.00	10/12/01	23		4.5	2	1.8	2	2	2	2
0.90	05/20/02	2		2	2	2	4	7.8	2	2
1.27	06/25/02	33		2	2	1.8	2	2	2	4.5
0.00	08/05/02	2		2	2	2	2	2	7.8	2
0.00	09/09/02	2		2	2	17	2	4.5	4.5	4.5
0.26	10/25/02	2		2	2	2	2	2	2	2
0.00	12/18/02	4.5		4.5	17	2	2	2	2	4
1.05	05/15/03		2	2	2	2	2	2	2	2
0.35	06/17/03		2	2	2	2	2	2	2	1
0.04	07/02/03		2	2	2	2	2	2	2	17
0.00	07/07/03		2	2	2	2	2	2	2	2
0.44	08/12/03		33	110	2	2	2	2	2	2
0.21	09/22/03		2	2	2	2	2	2	4.5	4.5
0.00	12/09/03		6.1	2	34	2	2	2	2	2
	Count	25	7	30	30	30	30	30	30	28
	Geomean	3.9	3.5	2.5	2.3	2.2	2.3	2.3	2.4	2.6
	Est. 90th	15.5	13.8	6.8	5.3	4.2	3.8	3.8	4.0	5.4
	Class.	A	N	A	A	A	A	A	A	A

ATLANTIC COAST (OFFSHORE) DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: data with antecedent (three-day) rainfall greater than 2.5 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	ACB20
0.00	01/19/00	1.8
0.00	01/30/00	1.8
0.00	02/22/00	1.8
0.07	03/06/00	1.8
0.12	03/09/00	1.8
0.00	03/23/00	2
0.90	04/13/00	2
1.21	05/15/00	2
0.14	05/23/00	2
0.00	06/08/00	2
0.56	06/19/00	2
0.56	07/10/00	2
0.11	07/24/00	2
0.67	08/09/00	2
0.05	08/21/00	2
0.05	08/22/00	2
0.12	09/06/00	2
1.29	09/19/00	2
0.00	10/25/00	2
0.25	04/09/01	2
0.26	05/14/01	2
1.55	06/04/01	2
0.00	07/25/01	2
0.03	08/30/01	2
0.08	09/20/01	2
0.00	10/03/01	2
0.00	05/08/02	2
0.90	05/20/02	2
1.27	06/25/02	2
0.00	09/09/02	2
0.26	10/25/02	2
1.18	11/15/02	2
1.05	05/15/03	2
2.14	05/28/03	2
0.04	07/02/03	2
0.00	07/07/03	2
0.00	08/28/03	2
0.21	09/22/03	2
0.00	10/20/03	2
0.00	12/10/03	2

Count	30
Geomean	2.0
Est. 90th	2.0
Class.	A

RYE HARBOR DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: June, July and August; data with antecedent (three-day) rainfall greater than 2.5 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	RH1	RH2	RH3	RH4
0.00	01/30/96	7.8	4.5	1.8	1.8
0.00	02/27/96	2	4.5	1.8	2
0.02	03/26/96	7.8	7.8	2	7.8
0.50	04/29/96	11	1.8	1.8	4
0.00	05/28/96	2	1.8	1.8	1.8
0.00	11/19/96	17	27	1.8	2
2.49	12/09/96	110	23		49
0.00	01/14/97	4.5	1.8	4	1.8
0.00	02/18/97	1.8	1.8	1.8	4.5
0.00	03/11/97	2	2	7.8	2
1.15	04/28/97	330	2		1.8
0.00	10/21/97	14	79	9.3	46
1.95	03/09/98	79	33	1.8	13
0.12	04/27/98	6.8	2	2	4.5
0.00	05/19/98	13	1.8	17	4.5
0.15	11/16/98	13	1.8		7.8
0.14	05/23/00	33	2	4.5	11
0.00	05/31/00	4.5	33	2	7.8
0.12	09/06/00	17	4.5	2	11
0.00	10/25/00	34	1.8	2	4.5
0.72	11/01/00	49	4.5	9.3	33
0.00	12/07/00	40	2		2
0.00	01/08/01	2	2	2	31
0.00	04/26/01	31	2	4.5	13
0.00	05/01/01	9.3	2	2	2
0.08	09/20/01	140	49	23	79
0.35	10/15/01	280	49	7.8	79
0.29	11/26/01	6.8	4.5	2	13
0.00	01/28/02	4.5	49	2	130
0.00	03/25/02	3.6	2	2	4.5
0.02	04/22/02	4	13	2	4
0.90	05/21/02	7.8	4	1.8	2
0.24	09/03/02	540	22	40	13
0.00	10/21/02	13	6.8	2	3.7
1.53	11/19/02	170	23	130	49
0.00	03/12/03	2	13	4.5	17
1.24	04/01/03	9.3	7.8	4	2
0.01	09/08/03	43	17	4.5	350
0.00	11/17/03	90	2	2	2
	Count	30	30	30	30
	Geomean	19.9	6.4	4.1	10.2
	Est. 90th	49.2	33.5	16.3	63.0
	Class.	R	A	A	R

HAMPTON/SEABROOK HARBOR DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: June, July, August, September, and October; data with antecedent (three-day) rainfall greater than 0.25 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	HH 10	HH 11	HH 12	HH 17	HH 18	HH 19	HH 1A	HH 2B	HH 5B	HH 5C
0.00	01/05/98	13	13	22	14	7.8	7.8	11	7.8	6.8	
0.00	02/02/98	2	2	2	2	1.8	7.8	14	11	4.5	2
0.08	03/02/98	7.8	2	4.5	2	7.8	4	9.3	2	4.5	2
0.00	11/02/98	1.8	4.5	14	4	13	7.8	110	11	17	4
0.00	11/30/98	4	13	7.8	13	4.5	9.3	13	7.8	13	4.5
0.00	02/02/99	2	13	33	7.8	4	6.8	9.3	4.5	2	13
0.00	04/12/99	1.8	2	1.8	1.8	1.8	1.8	1.8	2	1.8	1.8
0.11	05/10/99	2	4.5	1.8	4.5	11	4.5	7.8	7.8	2	1.8
0.00	12/28/99	49	46	4.5	4.5	2	2	4.5	6.8	24	49
0.00	01/19/00	1.8	4.5	2	2	4.5	130	1.8	1.8	7.8	2
0.00	12/04/00	6.1	4	2	4.5	6.8	2	2	4	4.5	4.5
0.00	12/05/00	6.8	9.2	4.5	2	4.5	7.8	6.8	4.5	2	2
0.00	12/10/00	2	2	1.8	2	2	1.8	2	2	14	2
0.00	01/22/01	2	2	4.5	2	2	2	2	2	2	2
0.00	02/20/01	1.8	2	4.5	2	2	2	2	4	2	4
0.06	04/23/01	2	2	2	2	1.8	2	2	2	2	1.8
0.00	11/13/01	7.8	2	13	2	4.5	6.8	13	4	4.5	2
0.00	12/05/01	2	4.5	4.5	6.8	2	17	4	4.5	2	2
0.00	12/11/01	2	4.5	2	1.8	2	2	4.5	2	2	2
0.00	01/24/02	2	4	2	2	2	2	4.5	4.5	7.8	4.5
0.01	05/06/02	2	2	2	2	2	2	2	1.8	2	2
0.00	05/08/02	2	7.8	2	4.5	2	2	2	2	2	2
0.00	12/10/02	2	2	4	2	1.8	1.8	2	4.5	7.8	2
0.00	12/19/02	6.8	6.8	2	4	6.8	2	11	2	2	11
0.00	03/17/03	2	1.8	2	2	2	2	2	2	2	2
0.21	03/28/03	2	4.5	2	2	1.8	2	4.5	2	2	2
0.11	04/09/03	2	4.5	1.8	2	2	4.5	7.8	2	7.8	4.5
0.15	11/12/03	2	4.5	13	6.8	23	4.5	4.5	49	49	13
0.00	11/18/03	6.8	2	13	2	4	7.8	4.5	23	4.5	2
0.03	12/04/03	2	2	2	2	2	2	2	2	2	2
0.00	12/09/03	12	17	2	7.8	3.6	4	4	2	2	2
0.00	12/10/03	4.5	4.5	2	4.5	4.5	2	13	7.8	13	2
	Count	30	30	30	30	30	30	30	30	30	30
	Geomean	3.1	4.1	3.5	3.0	3.3	3.6	4.5	3.7	4.2	3.1
	Est. 90th	8.6	11.4	9.9	6.3	8.1	12.0	14.6	10.6	13.9	8.5
	Class.	A	A	A	A	A	A	A	A	A	A

HAMPTON FALLS RIVER AND TAYLOR RIVER DATA

Fecal coliform (MPN/100ml) data for samples collected under Systematic Random Sampling program (open status only), excluding the following data: June, July, August, September, and October; data with antecedent (three-day) rainfall greater than 0.25 inches; data that failed standard Quality Assurance checks. Note: data censors not shown.

RAIN	DATE	HH30	HH31	HH32	HH33	HH34
0.01	03/23/00	2	11	6.1	4	2
0.00	12/04/00	4.5	2	4	13	4.5
0.00	12/05/00	1.8	22	2	6.8	4.5
0.00	12/10/00	2	4.5	3.7	2	2
0.00	01/22/01	2	2	2	2	2
0.00	02/20/01	2	7.8	7.8	4.5	2
0.06	04/23/01	2	2	2	2	2
0.00	11/13/01	4	7.8	4.5	4.5	7.8
0.00	12/11/01	2	2	2	2	4
0.00	01/24/02	13	2	4	4.5	2
0.01	05/06/02	2	2	2	13	2
0.00	05/08/02	13	4.5	2	2	4
0.00	12/10/02	17	23	17	4	2
0.00	12/19/02	4.5	17	49	49	4.5
0.00	03/17/03	2	2	2	2	2
0.21	03/28/03	4	4	2	2	4.5
0.11	04/09/03	4.5	2	2	13	4.5
0.15	11/12/03	13	21	23	7.8	6.1
0.00	11/18/03	3.7	2	2	2	7.8
0.03	12/04/03	2	2	1.8	2	2
0.00	12/10/03	4	13	4.5	2	4
	Count	21	21	21	21	21
	Geomean	3.7	4.7	3.9	4.1	3.2
	Est. 90th	9.5	16.0	12.8	13.0	6.1
	Class.	A	A	A	A	A

Appendix 3
2003 Shellfish Tissue Fecal Coliform Data

Note: Data sorted by waterbody, then by date. Table includes 20 baseline tissue samples paid for by non-NHEP funds.

AREA	STATION	DATE	WATER FC	MEAT FC	SPECIES	PROJECT TYPE
Atlantic	ACRH2	12/29/2003	<2	=45	blue mussel	BASELINE TISSUE
Great Bay Estuary	GBSP1	4/2/2003	=79	=220	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	LBFP1	4/2/2003	=17	=1600	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	LBFP1	4/2/2003	no data	=490	razor clam	EMERGENCY CLOSURE
Great Bay Estuary	GBSP1	4/7/2003	=79	=330	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	LBFP1	4/7/2003	=13	=330	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	GBSP1	4/10/2003	=7.8	=220	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	LBFP1	4/10/2003	<2	=460	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	LBFP1	4/21/2003	=4.5	=78	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	LBOY1	4/21/2003	no data	<20	american oyster	EMERGENCY CLOSURE
Great Bay Estuary	GBSP1	7/15/2003	<2	=130	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	GBNI1	9/10/2003	<2	=20	american oyster	BASELINE TISSUE
Great Bay Estuary	GBSP1	9/10/2003	=2	=20	softshell clam	BASELINE TISSUE
Great Bay Estuary	LBFP1	9/10/2003	<2	=20	softshell clam	BASELINE TISSUE
Great Bay Estuary	GBSP1	9/18/2003	=27	=230	softshell clam	RAINFALL STUDY
Great Bay Estuary	GBNI1	10/30/2003	=130	=130	american oyster	RAINFALL STUDY
Great Bay Estuary	GBSP1	10/30/2003	=540	=230	softshell clam	RAINFALL STUDY
Great Bay Estuary	GBNI1	11/2/2003	=23	=130	american oyster	EMERGENCY CLOSURE
Great Bay Estuary	GBSP1	11/2/2003	=79	=700	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	GBNI1	11/4/2003	=23	=45	american oyster	EMERGENCY CLOSURE
Great Bay Estuary	GBSP1	11/4/2003	=49	=130	softshell clam	EMERGENCY CLOSURE
Great Bay Estuary	GBNI1	11/19/2003	=7.8	<20	american oyster	BASELINE TISSUE
Great Bay Estuary	GBSP1	11/19/2003	=6.8	=78	softshell clam	BASELINE TISSUE
Great Bay Estuary	LBFP1	11/19/2003	=6.8	=78	softshell clam	BASELINE TISSUE
Great Bay Estuary	LBFP1	12/10/2003	=70	=330	softshell clam	BASELINE TISSUE
Hampton/Seabrook	HHCI1	1/8/2003	=6.8	=230	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI2	1/8/2003	=23	=310	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	1/8/2003	=13	=230	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG2	1/8/2003	=13	=490	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	2/5/2003	=33	=330	softshell clam	EMERGENCY CLOSURE
Hampton/Seabrook	HHMG2	2/5/2003	=70	=1300	softshell clam	EMERGENCY CLOSURE
Hampton/Seabrook	HHCI1	2/10/2003	=4	=45	softshell clam	EMERGENCY

AREA	STATION	DATE	WATER FC	MEAT FC	SPECIES	PROJECT TYPE
						CLOSURE
Hampton/Seabrook	HHHR1	2/10/2003	<2	=78	blue mussel	EMERGENCY CLOSURE
Hampton/Seabrook	HHMG1	2/10/2003	<2	=20	softshell clam	EMERGENCY CLOSURE
Hampton/Seabrook	HHMG2	2/10/2003	=2	<20	softshell clam	EMERGENCY CLOSURE
Hampton/Seabrook	HHCI1	2/24/2003	=22	=78	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	2/24/2003	=4.5	=78	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG2	2/24/2003	=4.5	=230	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	3/10/2003	=14	=220	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	3/10/2003	<2	=130	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG2	3/10/2003	=7.8	<20	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	3/20/2003	=2	<20	softshell clam	BASELINE TISSUE
Hampton/Seabrook	HHMG1	3/20/2003	=2	<20	softshell clam	BASELINE TISSUE
Hampton/Seabrook	HHCI1	3/22/2003	=33	=78	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHMG1	3/22/2003	=4.5	=45	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHCI1	3/24/2003	=23	=230	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHMG1	3/24/2003	=11	=110	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHCI1	3/26/2003	=13	=78	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHMG1	3/26/2003	<2	=130	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHCI1	4/1/2003	=11	=230	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	4/1/2003	=23	=230	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	4/13/2003	<2	=490	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHMG1	4/13/2003	=6.8	=140	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHCI1	4/16/2003	=13	=1300	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHMG1	4/16/2003	=22	=220	softshell clam	RAINFALL STUDY
Hampton/Seabrook	HHCI1	4/21/2003	=23	=790	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI2	4/21/2003	no data	=1300	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	4/21/2003	=13	=490	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG2	4/21/2003	no data	=170	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	4/23/2003	=33	=2500	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	4/23/2003	<2	=220	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	4/25/2003	<2	=210	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	4/25/2003	<2	<20	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	4/28/2003	=7.8	=20	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	4/28/2003	=2	=78	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	4/30/2003	=13	=1300	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	4/30/2003	=13	=130	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	5/2/2003	=13	=490	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	5/2/2003	=13	=1300	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHBR1	5/5/2003	=2	=330	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHBR1	5/5/2003	no data	=1100	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	5/5/2003	=2	=1100	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	5/5/2003	=6.8	=490	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHBR1	5/7/2003	=6.8	=490	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHBR1	5/7/2003	no data	=490	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	5/7/2003	=7.8	=700	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	5/7/2003	=23	=1400	softshell clam	RAINFALL CLOSURE

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Hampton/Seabrook	HHCI1	5/13/2003	=33	=1700	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI3	5/13/2003	no data	=230	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	5/13/2003	=23	=130	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	5/19/2003	=17	=330	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI3	5/19/2003	no data	=330	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	5/19/2003	=13	=68	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI3	5/27/2003	=130	=230	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	5/27/2003	=140	=3500	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI3	10/20/2003	=13	=1700	softshell clam	BASELINE TISSUE
Hampton/Seabrook	HHMG1	10/20/2003	=23	=1400	softshell clam	BASELINE TISSUE
Hampton/Seabrook	HHCI3	10/28/2003	=70	=2400	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	10/28/2003	=33	=330	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI3	11/10/2003	=79	=330	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	11/10/2003	=23	=78	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	11/18/2003	=6.8	=230	softshell clam	BASELINE TISSUE
Hampton/Seabrook	HHMG1	11/18/2003	=4.5	=130	softshell clam	BASELINE TISSUE
Hampton/Seabrook	HHCI1	11/24/2003	=79	=330	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	11/24/2003	=7.8	=170	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHHR1	12/2/2003	=2	=78	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	12/2/2003	=7.8	=170	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHHR1	12/10/2003	=23	=170	blue mussel	BASELINE TISSUE
Hampton/Seabrook	HHMG1	12/10/2003	=350	=78	softshell clam	BASELINE TISSUE
Hampton/Seabrook	HHBR1	12/17/2003	=13	=78	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	12/17/2003	=14	=130	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHHR1	12/17/2003	=17	=45	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	12/17/2003	=33	=45	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHBR1	12/21/2003	<2	=78	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	12/21/2003	=4	=20	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHHR1	12/21/2003	=4.5	<20	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	12/21/2003	=7.8	=45	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHBR1	12/29/2003	=4.5	=78	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHCI1	12/29/2003	=6.8	=78	softshell clam	RAINFALL CLOSURE
Hampton/Seabrook	HHHR1	12/29/2003	=2	=45	blue mussel	RAINFALL CLOSURE
Hampton/Seabrook	HHMG1	12/29/2003	=7.8	=20	softshell clam	RAINFALL CLOSURE
Little Harbor	LHCP1	4/1/2003	=13	=330	softshell clam	EMERGENCY CLOSURE
Little Harbor	LHCP1	4/7/2003	=22	=1700	softshell clam	EMERGENCY CLOSURE
Little Harbor	LHTF1	4/7/2003	=23	=230	softshell clam	EMERGENCY CLOSURE
Little Harbor	LHOP1	4/17/2003	=49	=490	softshell clam	RAINFALL CLOSURE
Little Harbor	LHCP1	4/23/2003	=17	=240	softshell clam	RAINFALL CLOSURE
Little Harbor	LHOP1	4/23/2003	=13	=230	softshell clam	RAINFALL CLOSURE
Little Harbor	LHNC1	4/29/2003	=2	=310	softshell clam	RAINFALL CLOSURE
Little Harbor	LHOP1	4/29/2003	=33	=45	softshell clam	RAINFALL CLOSURE
Little Harbor	LHNC1	5/19/2003	=2	=18	softshell clam	RAINFALL CLOSURE
Little Harbor	LHNC1	9/18/2003	=2	=230	softshell clam	BASELINE TISSUE
Little Harbor	LHNC1	10/21/2003	=2	=130	softshell clam	BASELINE TISSUE
Little Harbor	LHOP1	11/4/2003	=14	=490	softshell clam	RAINFALL CLOSURE

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Little Harbor	LHNC1	11/12/2003	=7.8	<20	softshell clam	RAINFALL CLOSURE
Little Harbor	LHNC1	11/18/2003	=2	=45	softshell clam	BASELINE TISSUE
Little Harbor	LHNC1	12/1/2003	=4.5	=110	softshell clam	BASELINE TISSUE
Little Harbor	LHOP1	12/1/2003	=23	=130	softshell clam	BASELINE TISSUE
Little Harbor	LHCP1	12/21/2003	=14	=45	softshell clam	RAINFALL CLOSURE
Little Harbor	LHSG1	12/21/2003	=6.8	=20	softshell clam	RAINFALL CLOSURE
Little Harbor	LHNC1	12/29/2003	=7.8	=93	softshell clam	RAINFALL CLOSURE